



EXPLORATION—BRITISH NORTH AMERICA.

FURTHER PAPERS

RELATIVE TO THE

EXPLORATION

BY THE EXPEDITION UNDER CAPTAIN PALLISER

OF THAT PORTION OF

BRITISH NORTH AMERICA

WHICH LIES BETWEEN

THE NORTHERN BRANCH OF THE RIVER SASKATCHEWAN AND
THE FRONTIER OF THE UNITED STATES; AND
BETWEEN THE RED RIVER AND THE ROCKY MOUNTAINS,
AND THENCE TO THE PACIFIC OCEAN.

Presented to both Houses of Parliament by Command of Her Majesty.
1860.



LONDON:

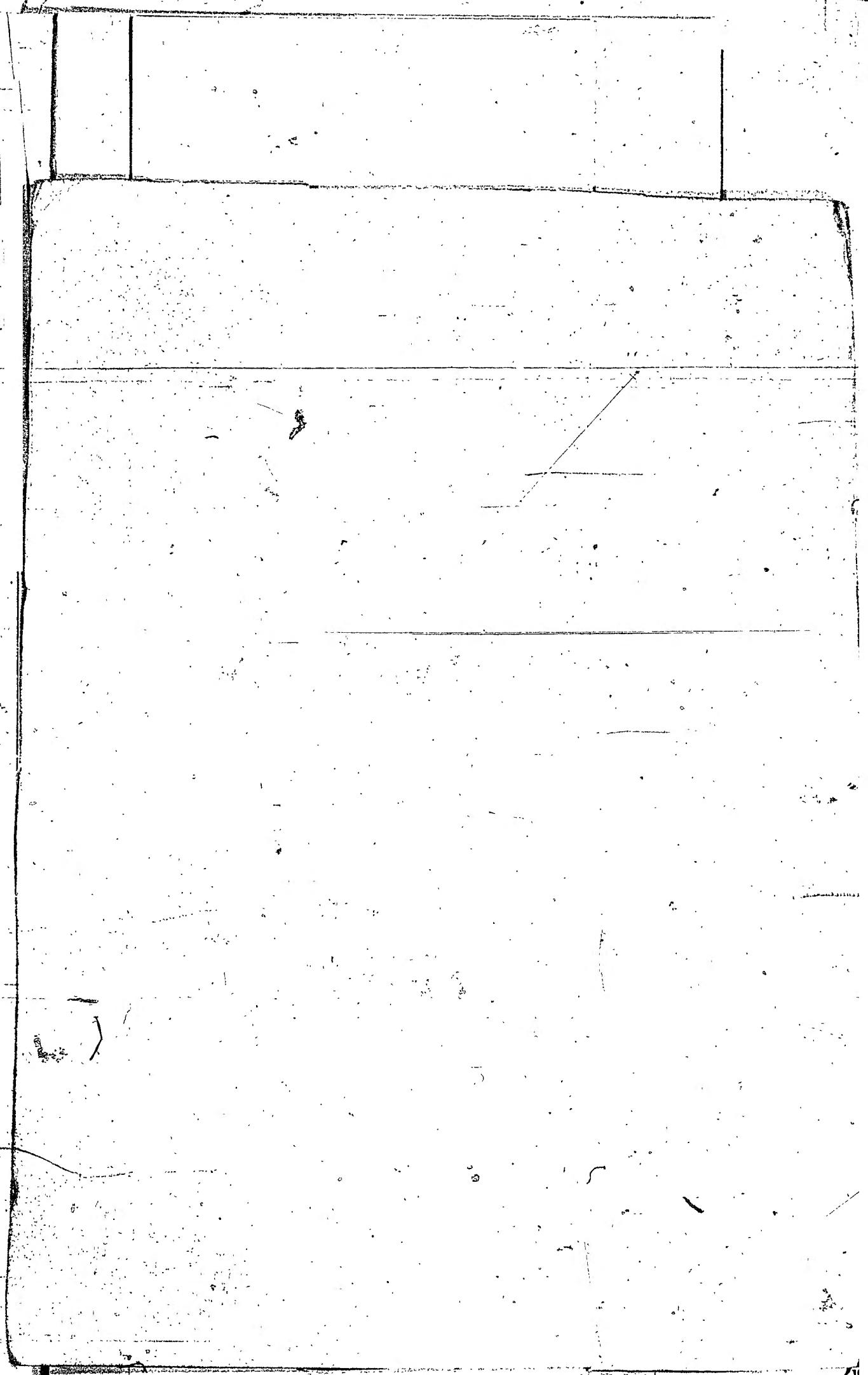
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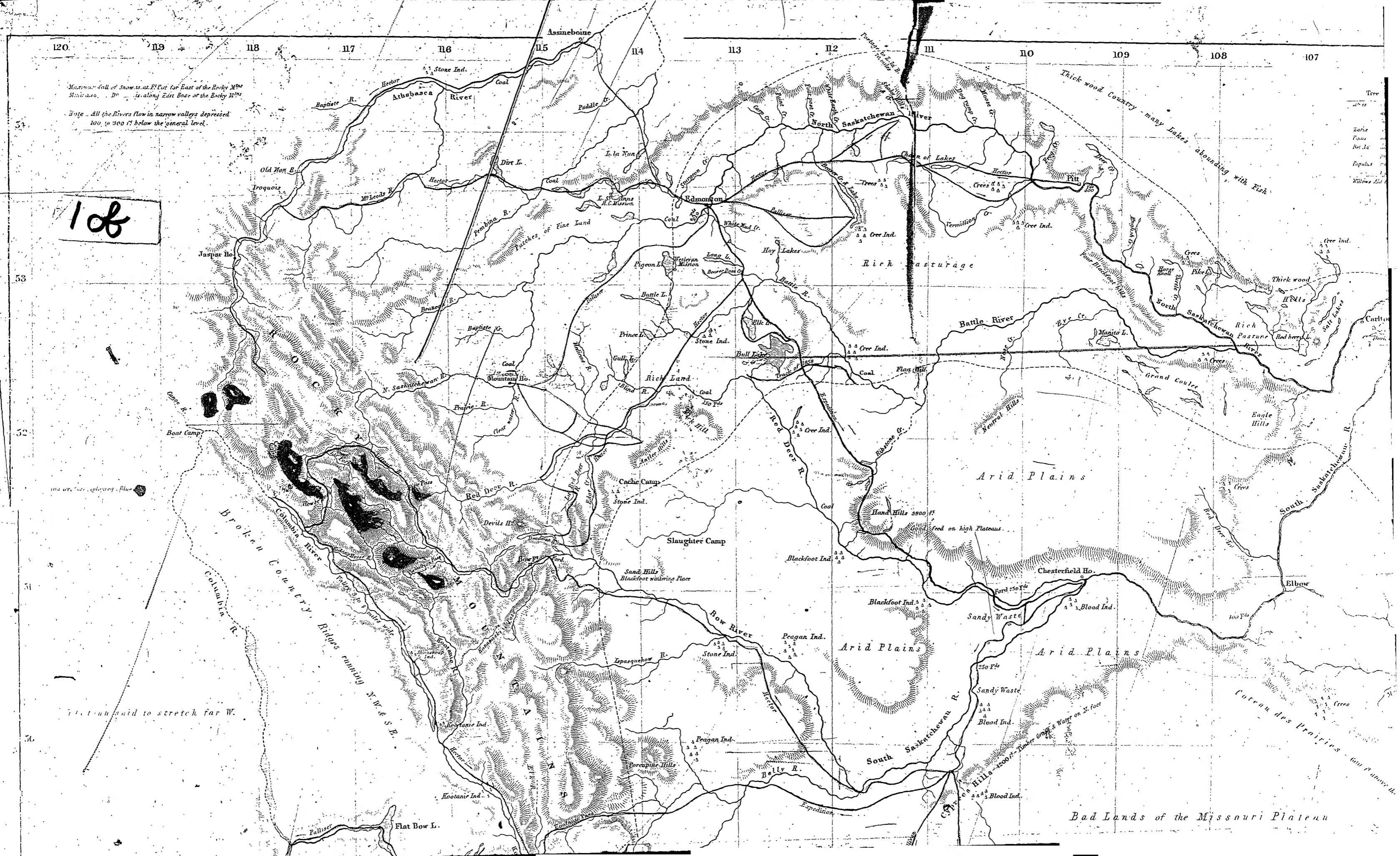
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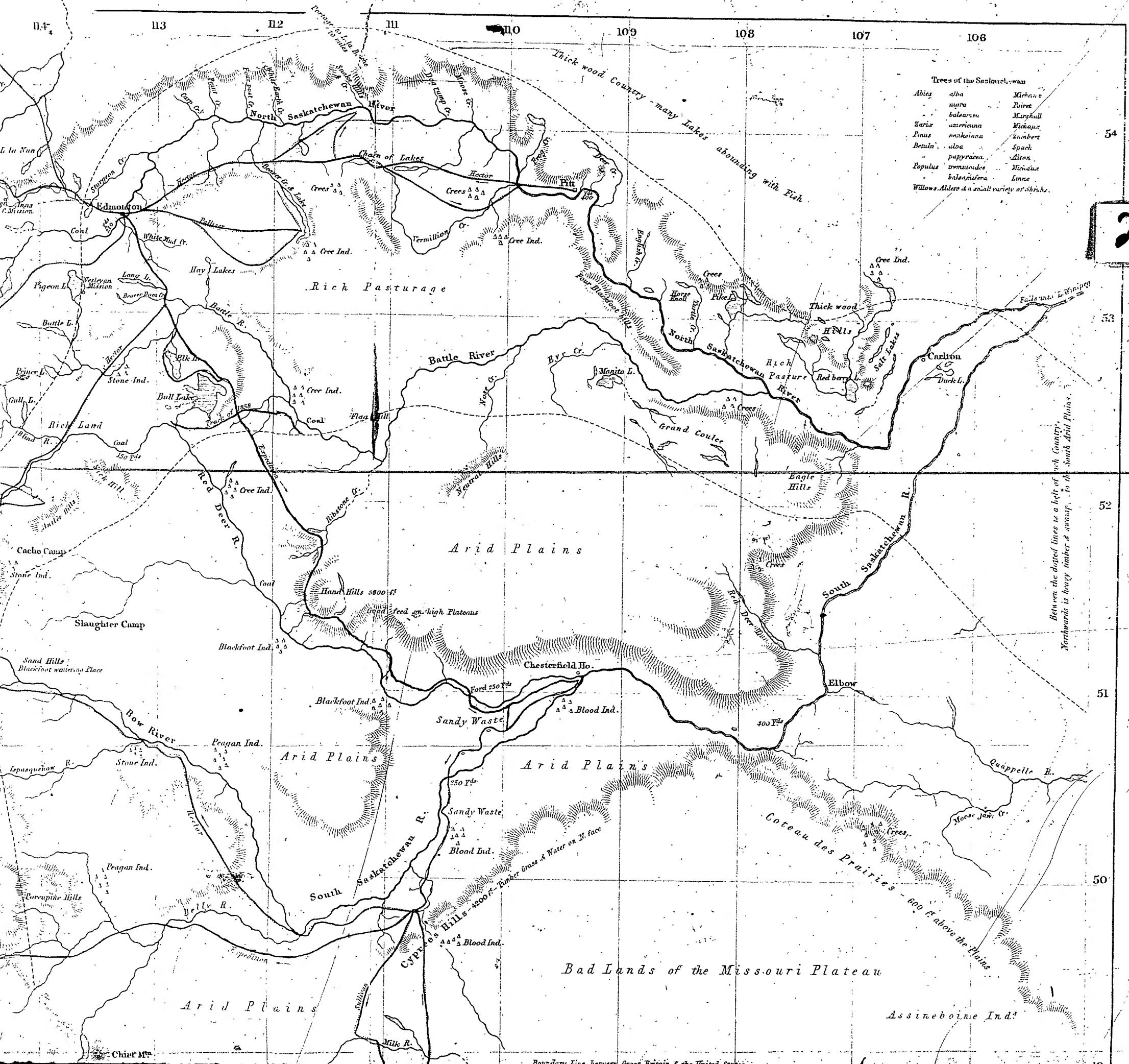
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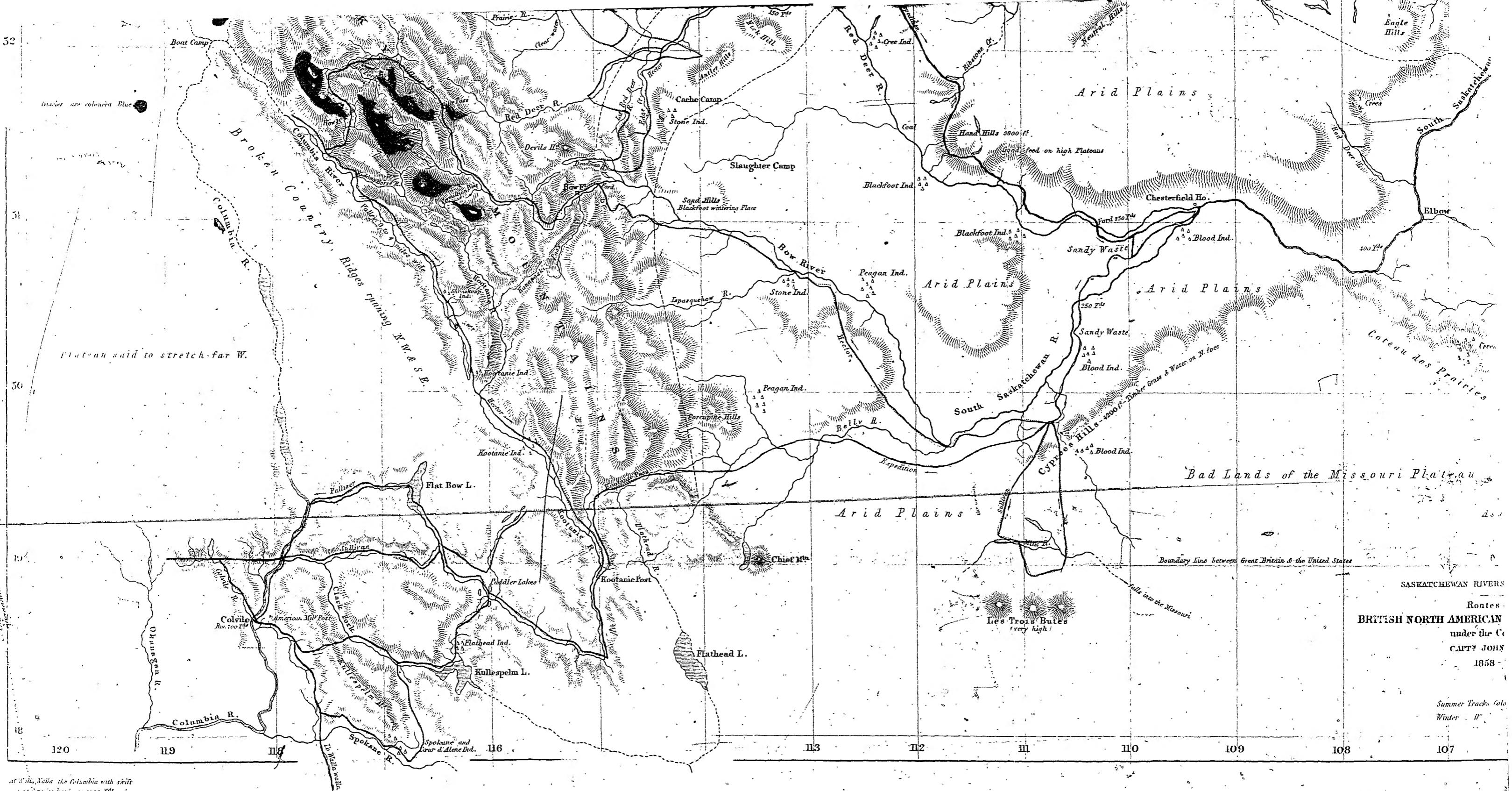
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** The details of Captain Palliser's Explorations are in preparation, No. 1. to No. 4. being merely preliminary letters.



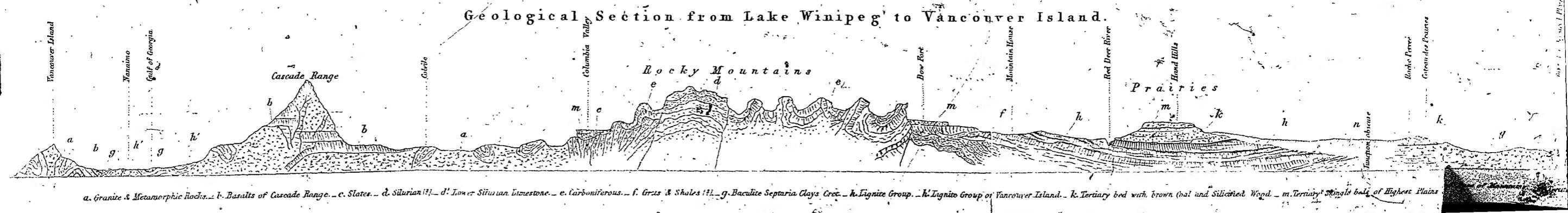


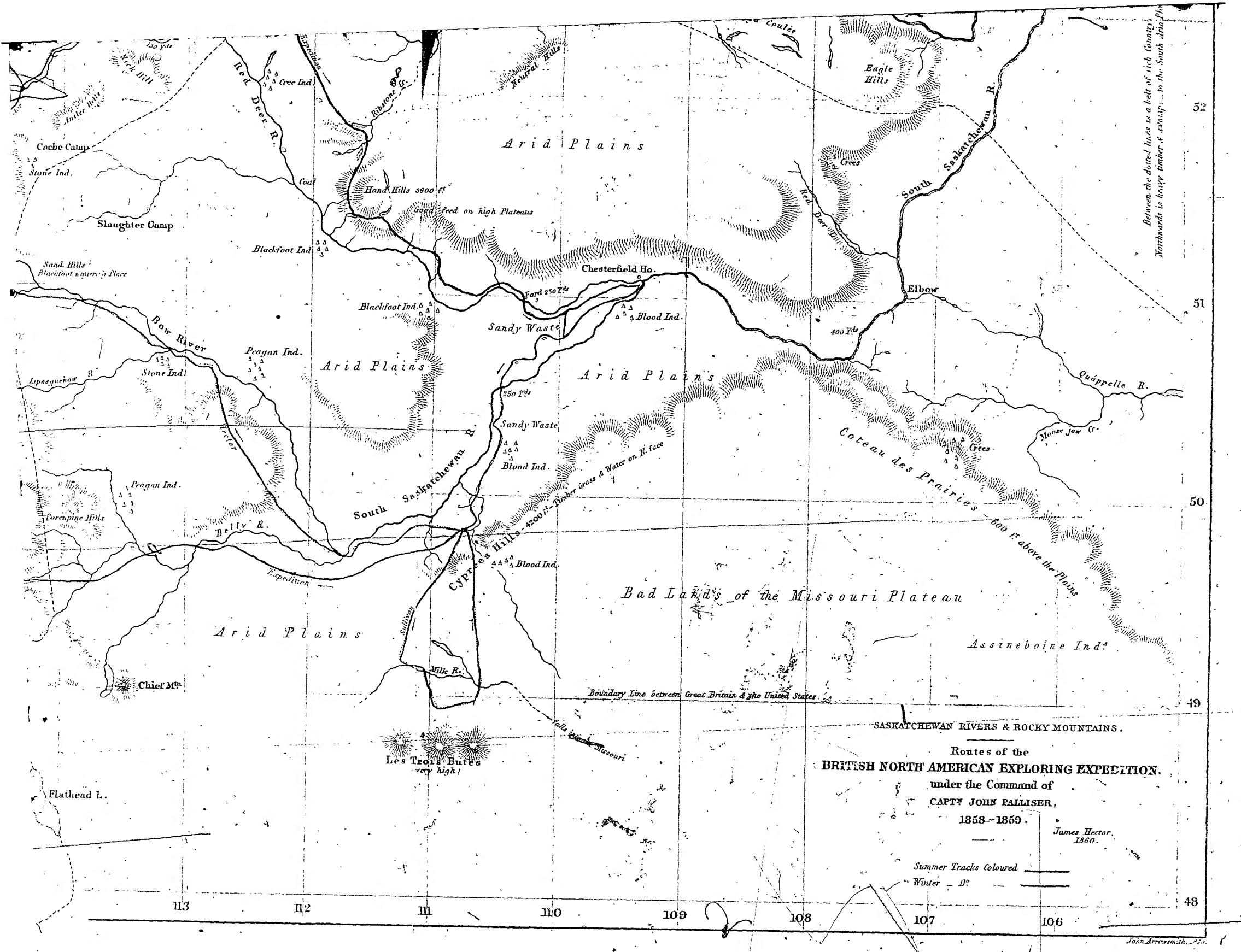




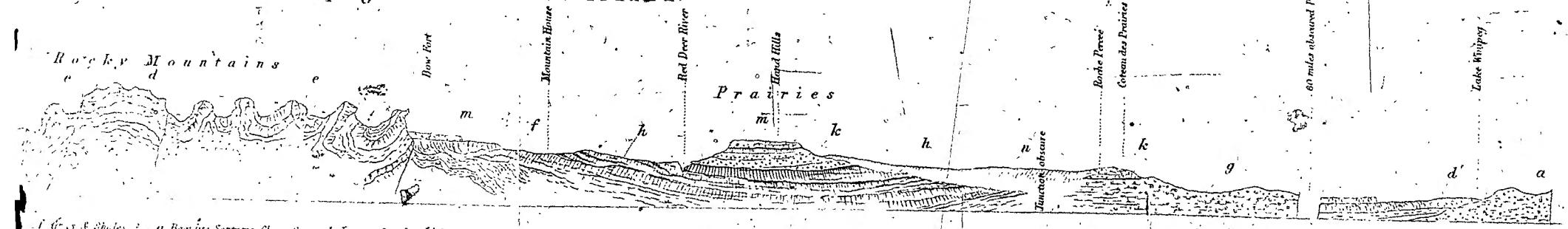
Geological Section from Lake Winnipeg to Vancouver Island.

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Section from Lake Winnipeg to Vancouver Island.



f. Gr. 5. *g*. Bivalve *Septaria* Clays Crust. *h*. Lignite Group. *i*. Lignite Group of Vancouver Island. *k*. Tertiary bed with brown Coal and Silicified Wood. *m*. Tertiary Shingle beds of Highest Plains and Base of Mountains. *n*. Tertiaries of Low Plains.

S K E T C H M A P

showing the Routes
of.

CAPTM PALLISER & M^{RS} SULLIVAN

during 1859.



R E F E R E N C E.

Height of Land 1500 ft above Ft. SHEPHERD.

2300 ft above Ft. SHEPHERD.

X COLUMBIA is here a very wild Stream, flowing through a very contracted channel, called as above, LITTLE DALLS.

N.B. As far up as Salmon R. on the PENDOREILLES, not even a bark canoe can ascend, the River is a succession of falls and wild rapids.

The KOOTENAY R. also, presents numerous bad rapids from its mouth right up to the FLATBOW LAKE. Only experienced Indians navigate it.

Brit. Statute Miles.

5 10 15 20 25 30

W. Sullivan

FURTHER PAPERS

RELATIVE TO THE

EXPLORATION OF BRITISH NORTH AMERICA.

No. 1.

No. 1.

COPY of a LETTER from Captain PALLISER to the UNDER-SECRETARY OF STATE FOR THE COLONIES.

Fort Edmonton, Saskatchewan,
May 20th, 1859.

(Received September 5, 1859.)

MY LORD,

I AM in receipt of your Letter to me dated July 3rd, 1858, and in compliance with your directions I transmit my opinions on the four points therein contained for the information of Secretary Sir E. B. Lytton.

First, as to whether the Red River Settlement possess qualifications which would adapt it for an English Colony.

The advantages that would accrue to Great Britain from the possession of this Colony would consist in enabling the British Government to support troops in case their presence were required in that portion of the empire; without that Colony all supplies for their maintenance would be necessarily cut off; but if that Colony were adopted by Her Majesty's Government, it might in a short period become very important head quarters, situated as it is near the boundary of the United States, and almost in the centre of the continent.

I shall now endeavour to state its capabilities as an agricultural settlement, from the information I have received, as well as from my own observations during three different visits, (viz., in July and in November of 1857 and in April 1858.)

The average winter commences in the middle of November; shortly after this the lakes and rivers set fast, and the ground acquires its permanent clothing of snow.

The winter lasts till about the second week in April, although during the month of March there are many warm genial days, but with hard frosts during the nights; but in addition to this period of five months there is a previous frost of two or three weeks, which precedes the taking of the rivers; this frost is severe enough to stop agricultural operations, so that the winter may be estimated at six months' duration. The extreme cold is in the month of February, when the thermometer falls to about 45° below zero. The winter is the most favourable time for the transport of heavy materials, such as those required for building purposes. Thaws rarely occur before the month of March, and at this time the existence of horses and horned cattle becomes precarious, owing to the thaws by day being succeeded by frosts at nights, causing a crust on the snow, in many cases too hard for the animals to remove in order to feed. But if horses and horned cattle are properly provided with a sufficiency of hay to meet that emergency, they will not only survive, but continue useful and serviceable during the whole of the winter and spring. Spring progresses with great rapidity; in a few days snow disappears, and the new grass has already commenced to grow up by the beginning of May. At the end of that month agricultural operations might be commenced. During the month of June, however, severe night frosts frequently occur, rendering the wheat crops very precarious, but the climate is well suited to the growth of barley, oats, potatoes, and garden vegetables.

The heat during summer is very great, ripening all fruits rapidly with some curious exceptions, among which are apples, which will not grow either there or in the north of the State of Minnesota. The harvest for hay, which is in great abundance, commences in the beginning of July, and that for the cereals about the 10th August. Great damage often occurs at this time to the crops from thunder storms and also from grasshoppers.

The soil is that of an ancient lake bottom, consisting of variously proportioned mixtures of clay, loam, and marl, with a remarkable deficiency of sand. It is overlaid by a great thickness of vegetable mould, varying from two to four or five feet in depth.

The settlement at present occupies an area of about 50 square miles in extent; its centre is at the forks of the Assineboine and Red River in lat. $49^{\circ} 52' N.$, long. $96^{\circ} 53' W.$, and at an elevation of 800 feet above the level of the sea.

The chief wealth of the agriculturist would be derived from the rearing of cattle; large quantities of very nutritious grasses abound everywhere. Hemp, flax, and hops grow admirably.

Query 2nd. "What should be the dimensions and the boundary line of such Colony, " and whether it would be advisable to include the Saskatchewan District in it so as to " establish one great border line from the new Colony of British Columbia up to the Red " River Settlement, under a sway and jurisdiction distinct from the Hudson's Bay " Company's authority ? "

In answer to this question I can only state, that I cannot see any object in limiting a new Colony to such narrow bounds as the mere district of Red River, and feel decidedly in favour of annexing not only the Saskatchewan, but also the Swan River District in one Colony, and so establish one great border line from the new Colony of British Columbia up to the Red River Settlement.

The occupation of the territory will only be a work of time; in proportion to the increase of population at Red River, settlers will advance into the Swan River and Saskatchewan Districts.

The country drained by the Saskatchewan is very diverse in character, but although not presenting the same luxuriance of vegetation as the valley of Red River, there are many localities, both there and in the Swan River Districts, where fine arable tracts are to be found. The northern part of the Saskatchewan is a partially wooded country, having at one time been covered by an extension of the great pine forests of the north, which have been removed by successive fires.

The soil consequently abounds in vegetable mould, and is far superior to the prairie lands proper to the south, where there is in general but a very scanty growth of herbage. The northern portion of the Saskatchewan District is well adapted for the rearing of cattle, also for the raising of sheep, if housed and fed during the winter and spring.

Its climate is somewhat similar to that of Red River, but decidedly milder in the southern and western portions; the western portion of Swan River District is much the same as the northern parts of the Saskatchewan; while the northern and eastern parts, which consist chiefly of lakes, are valuable for their abundant supply of excellent fish.

To the north of the north branch of the Saskatchewan there is also a line of lake country crowning the watershed between that River and English and Athabasca Rivers, from which abundant supplies of fish can be obtained.

If then the united territories of Red River, Swan River, and Saskatchewan, were adopted by Her Majesty's Government, I would suggest the following boundaries:

The southern boundary of the Colony should be the 49th parallel of north latitude, commencing on east shore of the Lake of the Woods, to where it meets the crest of the Rocky Mountains in long. $115^{\circ} W.$ The eastern boundary of the Colony should be defined by a line commencing at the 49th parallel on the western shore of the Lake of the Woods, and following the western margin of that Lake to the watercourse which unites the Lake of the Woods with Lake Winnipeg, from thence extending around the eastern shore of Lake Winnipeg, and following the water course of that lake to the 54th parallel of N. lat. in long. $98^{\circ} W.$ The northern boundary of the Colony might run from the above point of intersection along the parallel of 54° of N. lat. to the point where it intersects the crest of the Rocky Mountains in 118° of W. long.

The whole would thus include a territory of 240,000 square miles.

In reference to the concluding portion of the second query in your Lordship's letter, viz., whether such colony should be under a sway and jurisdiction distinct from the Hudson Bay Company's authority, I have no hesitation in expressing my conviction that it is impossible for the Hudson's Bay Company to provide a government to meet the exigencies of a growing colony. Indians they can govern well through the medium of the trading shop; but the interests of a commercial community, which at all events must be adverse to their own, would not be likely to prosper under their rule. But as this is only an opinion perhaps it will not be out of place here to state a case. On my return (last May twelve months, from Red River to Fort Carlton) I visited Manitoba Portage, a flourishing settlement, which though situated not more than 60 miles from Red River Settlement, the general cause of complaint was that when they brought cases of theft,

trespass, or any other such cause of complaint, before the tribunal at Red River, they were at once dismissed on the plea that the district was beyond their jurisdiction, and my informants went on to say, that if matters were allowed to go on thus they would be compelled to institute a lynch law of their own.

In answer to the third query contained in your Lordship's letter, viz., "What means of access exist for British immigrants to reach this settlement," I think there are no means of access to be recommended save those via the United States.

The direct route from England via York Factory, and also that from Canada via Lake Superior, are too tedious, difficult, and expensive for the generality of settlers. The manner in which natural obstacles have isolated the country from all other British possessions in the East is a matter of considerable weight; indeed, it is the obstacle of the country, and one, I fear, almost beyond the remedies of art. The egress and ingress to the settlement from the east is obviously by the Red River Valley and through the States.

In answer to the fourth query contained in your Lordship's letter, viz., "Whether judging from the explorations you have already made, the country presents such facilities for the construction of a railway as would at some period, though possibly a remote one, encourage Her Majesty's Government in the belief that such an undertaking between the Atlantic and Pacific Oceans could ever be accomplished?" I have no hesitation in stating that no obstacles exist to the construction of a railway from Red River to the eastern base of the Rocky Mountains, and probably the best route would be found in the neighbourhood of the south branch of the Saskatchewan.

An amount of capital-very small in proportion to the territory to be crossed would be sufficient to accomplish the undertaking so far, but the continuation of the railway across the Rocky Mountains would doubtless require a considerable outlay.

In my letter to Her Majesty's Government, dated 7th October 1858,* I have referred to the two Passes examined by myself and my Secretary, Mr. Sullivan, both of which I found practicable for horses right across the main chain of the Rocky Mountains to the Columbia River, and that a small outlay would render the more northern one practicable for carts, and even waggons.

On the return of Dr. Hector from his branch expedition, I found he had also crossed the mountains as far as the valley of the Columbia River by the Vermillion Pass which leaves the valley of Bow River nearer to its source than the pass I had myself traversed. In that pass he had observed a peculiarity which distinguishes it from the others we had examined; viz., the absence of any abrupt step at the commencement of the descent to the West, both ascent and descent being gradual. This, combined with the low altitude of the greatest elevation passed over, led him to report very favourably upon the facilities of this pass for the clearing of a waggon road, and even that the project of a railroad by this route across the Rocky Mountains might be reasonably entertained.

In conclusion I wish to draw your Lordship's attention to the fact, that, in accordance with my instructions, we did not continue our explorations westward beyond the valley of the Columbia, I am therefore unable to form an opinion on any facilities that may exist, or obstacles which may oppose the further continuance of a railway from the valley of the Columbia River to the shores of the Pacific; I am in hopes, however, of soon receiving an answer to my letter to Her Majesty's Government, dated 7th October 1858, which no doubt will contain further instructions as to my explorations in that direction.

In the event of Her Majesty's Government deciding on the adoption of a North American Colony, comprising Red River and the Saskatchewan Districts, I would recommend that the Swan River should also be included in that Colony, and I beg to submit a letter from W. L. Christie, Esq., an officer of the Hudson's Bay Company, for some years in charge of that district previous to his recent promotion to the Saskatchewan.

This enclosed letter will explain what are considered by the Hudson's Bay Company to be the bounds of the Swan River district.

The Hudson's Bay Company Territories, are divided into districts for the convenience of the Indian trade. The valley of the Swan River does not embrace the Swan River District, nor does the Saskatchewan District contain the whole valley of the Saskatchewan River (a part of whose waters run through the Cumberland District), and therefore I have suggested, in answer to query 2, boundaries for the Colony under consideration, irrespectively of the districts or parts of districts which they comprise.

I have, &c.

(Signed) JOHN PALLISER.

The Under Secretary of State for Colonies. Commanding Exploring Expedition.

* *Vide* Papers presented June 1859, p. 29.

PAPERS RELATIVE TO THE

Encl. in
No. 1.

Enclosure in No. 1.

Edmonton House, Saskatchewan District,
17th May, 1859.

SIR, — AGREABLY to your request, I beg leave to submit to you the following information regarding the extent and resources of the Swan River District of the Hudson's Bay territories.

The Swan River districts extend from the Manitobah post on the south, and of Manitobah lake, to within three days of Fort Carlton on the north branch of the Saskatchewan river. It embraces the country as far south as the boundary line from longitude 99° W. to 106° W. To the west it bounds with the Saskatchewan district, and on the north with the Cumberland district.

There are seven trading posts in the district, viz:—

Fort Pelly.

Egg Lake.

Shell River.

Manitobah.

Fort Ellice.

Touchwood Hills.

Q'Appelle Lakes.

Of these, the three latter are plain posts, the trade at them being mainly for provisions, the others lying within the thickwood country, are fur trading posts.

Fort Pelly is the head quarters of the district, the arable land round Fort Pelly is not of any great extent, owing to the prevalence of sandy soil and swampy land, covered with thick wood.

On the few patches which have been brought under cultivation in the neighbourhood of the Fort, barley, potatoes, and all vegetables are raised to perfection. Wheat has been tried, but invariably fails.

The pasture around Fort Pelly is excellent, and the cattle raised here have produced beef of very fine quality. The Hudson's Bay Company have a considerable stock of cattle at this post, and rear some fine horses, the breeds having been imported direct from England.

At all the thickwood posts in this district, there is abundance of timber for building and other purposes, consisting of spruce, pine, and poplar.

Fort Pelly and Egg Lake are entirely supplied with provisions from the plains, while Shell River and Manitobah posts are supported by fish.

The country around Fort Ellice and the Touchwood Hills is well adapted for cultivation, and the rearing of cattle; the soil is good, but there is a great scarcity of timber either for fuel or building purposes.

The Q'Appelle Lake post is far out in the plains, and the country around it is almost devoid of wood. There is an excellent fishery at the Q'Appelle lakes; white fish are speared here in great numbers in the autumn.

The thickwood population of the Swan River district is about 1000; but owing to the wandering habits of the prairie Indians it is difficult to form an estimate of their numbers.

The complement of officers, clerks, and men employed by the Hudson's Bay Company in this district, is as follows, viz:—

One Commissioned officer, 6 Clerks, 7 Interpreters, and about 70 men, principally half-breeds.

The district is completely overrun by free traders from the Red River settlement, who come up in the fall and pass the winter along the frontier of the district, dependant entirely upon Buffalo for their support.

There is one settlement in this district at the south end of the Manitobah Lake, where there is a Missionary settlement, with a population of about 150 souls, who are entirely supported by fishing, raising a few potatoes only. Wheat however grows well there. There are besides this missionary settlement, two missionaries in the district, one stationed at Fort Pelly and the other at Q'Appelle Lakes, all belong to the Church Missionary Society.

Hoping the above information will be sufficient,

I have, &c.
(Signed) W.M. J. CHRISTIE.

John Palliser, Esq.,
Commanding Exploring Expedition.

No. 2.

No. 2.

COPY of a LETTER from Captain PALLISER to HER MAJESTY'S
SECRETARY OF STATE FOR THE COLONIES.

Fort Edmonton, Saskatchewan.

May 23, 1859.

(Received September 5, 1859.)

MY LORD,

I AVAIL myself of the opportunity afforded by the departure of the Hudson's Bay Company's boats for Norway House, to acquaint your Lordship of the return of Mons. Bourgeau (botanist of the expedition under my command) to England.

I have great pleasure in testifying to M. Bourgeau's zeal and activity in every way. In addition to his acquirements as a botanist, he possesses the most untiring energy, and in camp no fatigues deter him from immediate attention to the securing and preservation of his specimens.

He now leaves the expedition in order to return at the end of this his third season to England, and complete the botanical work (connected with the expedition) under the superintendance of Dr. Hooker at Kew.

EXPLORATION OF BRITISH NORTH AMERICA.

7

I regret to say that in consequence of the total failure of provisions in this part of the district, I am compelled to start with the expedition immediately to the south in search of Buffalo, the delay of even one day in the present crisis might be of serious consequences, I therefore cannot wait for the arrival of further instructions in answer to my letter addressed to your Lordship, dated October 1858, but must hasten south, and meanwhile make the best arrangements in my power for receiving my letters on the plains, until which time I will take no decided step with respect to further explorations.

I regret to say that the war is just about to be renewed, but I shall endeavour to do all in my power to cement the peace again.

I have spent the greater part of the winter at the foot of the Rocky Mountains among the Blackfeet, and am personally acquainted with almost all the principal men, and also with many of the Piegan and Blood Indians. I have found them much easier to deal with in all questions of peace or war than their neighbours the Crees. Because the Blackfeet are richer in horses, war is the greater object to the Crees in order to steal the Blackfeet horses.

Doctor Hector also during the winter proceeded to the mountains, and the result of his exploration and observations will be reported in due course.

I am happy to state that almost all our horses have got through the winter fairly, with the exception of four deaths, and none have been stolen, and I have to thank Mr. Sullivan for his activity and zeal in looking after them during the protracted absence of Doctor Hector and myself while we were in the mountains.

I have, &c.

(Signed) JOHN PALLISER,

Commanding Exploring Expedition.

Her Majesty's Principal
Secretary of State for the Colonies.

No. 3.

No. 3.

COPY of a LETTER from Captain PALLISER to HER MAJESTY'S SECRETARY OF STATE FOR THE COLONIES.

Fort Colvile, October 22, 1859.

(Received December 27, 1859.)

SIR,

I HAVE the honour to resume the account of the proceedings of the exploring expedition under my command, since our departure from Fort Edmonton, on the 27th of May 1859.

Owing to the great scarcity of provisions at Edmonton, and the total absence of buffalo from that part of the country, I was compelled to start with the expedition sooner than I would have wished, both on account of the condition of my horses, that had not yet sufficiently recovered from the severities of winter, also, because I had not yet received further instructions from the Colonial Office as to whether my expedition was to recross the Rocky Mountains. I therefore determined to endeavour to fall in with buffalo as speedily as possible, and there to await my instructions, and left Doctor Hector with directions to follow as soon as the mail from England had arrived.

Our party consisted of 16 men, including my secretary, Mr. Sullivan, and myself, two friends of mine, Captain Brisco, of the 11th Hussars, and Mr. Mitchell, who joined me in the commencement of last winter, and who were anxious to avail themselves of this opportunity of traversing the Blackfoot country. The accession of these two gentlemen and their men to my party enabled me to save some expence by hiring fewer men chargeable to the expedition, and I have had ever since cause to feel most thankful to them for the zeal and kindness, with which they have followed my directions, the patience and cheerfulness with which they endured many privations, and the steadiness and alacrity with which they undertook the guarding of the horses by night.

On 2nd of June we reached Buffalo Lake, where our provisions were exhausted; we however managed to support ourselves on ducks and beaver until the 11th, when we fell in with buffalo on the Oochischis Wachee or Hand Hills, in the Blackfoot country (Lat. 51° 32' N., Long. 111° 20' W.) Here I established my camp, and determined to await the arrival of Doctor Hector from Edmonton, with the letters from England. On the 14th of June we were visited by a war party of 45 Blackfeet, on their return from an unsuccessful invasion against the Crows. Having now plenty of meat, I received them hospitably, and dissuaded them from turning their arms against the Crees, from whom the Blackfeet had recently received great provocation, and persuaded them to

PAPERS RELATIVE TO THE

return to their camp. We were subsequently visited by several war parties, which, on the whole, were not very troublesome, but, unfortunately, succeeded in frightening one of my half-breed hunters and most of the men so much that I had no small amount of trouble to prevent my men from deserting and abandoning the expedition altogether, particularly when I informed them of my determination (in pursuance of my instructions of April 1857) to penetrate in a south-easterly direction to the forks of the Red Deer and Bow rivers, thence to the Cypress mountains, and along the boundary line to the Rocky mountains. I was finally obliged to compromise the matter by consenting to send back to Edmonton and engage five more men from Lake St. Ann's.

June 19.—Doctor Hector arrived with instructions from the Colonial Office, and I determined (without sacrificing any of the objects of the expedition in the country eastward of the Rocky mountains) to pursue my route to the westward over the passes discovered last year, as far towards the sea as the season would permit.

On 20th of June I despatched Felix Monroe, one of my hunters, to Edmonton, with directions to engage five additional effective men; I took the precaution of sending provisions with him for the use of himself and these men on their return journey back to my camp, directing Felix to make a cache of the provisions when he came within two days of the Fort, in order to preserve them from the hungry population at Edmonton, for the use of the men on their return, but the fearful state to which the Edmonton population were driven was such that the men sent back to the cache, and gave up the provisions to the women and children, and reached my camp on the 4th of July, having had nothing to eat for three and a half days, an account which their fearfully haggard features fully confirmed.

The Blackfeet complain very bitterly of the Hudson Bay Company, and certainly not without reason, for the injustice of the tariff and the enormous difference between the price paid by a Cree and by a Blackfoot at the same Fort, for the same article. Also, they complain of the utter insufficiency of the goods that remain at the Fort during the summer months. "Therefore," said their chiefs to me, "let them see how well they can do without us now!" However, I persuaded them to go into Edmonton, and bring them provisions, and have since heard that these Indians fulfilled their promise to me.

Owing to my having been so much in the Blackfoot country, both in the summer of 1858 and the winter of 1858-9 all the chiefs and principal men know me, and frequently said to me "Desire us to do anything you please and we will do it." Doctor Hector also has acquired a great influence among them by removing some trifling complaints from the men, and a great success in his profession among the women and children. Neither is this friendly feeling confined to the Blackfeet alone, for both Piegan and Blood Indians, whenever they came in any numbers to visit me, always rode unarmed into my camp, which is the greatest compliment that these Indians can possibly pay.

We have now travelled through the whole of their territories, a portion of country hitherto considered so dangerous as to be almost inaccessible, and we have neither had a horse stolen or a gun pointed at us by any of these tribes. However, I do not wish to infer that a total stranger would be equally safe, nor that any one accompanied by a military force (unless that force were a very large one) would also be safe; I think in either case they would run very great risk of having all their horses stolen. These Indians tent in very large camps, from 400 to 600 tents together.

The Oochischiis Wachee or Hand Hills in Lat. $51^{\circ} 32' N.$, Long. $111^{\circ} 20' W.$, are a plateau, elevated about 450 feet above the level of the surrounding prairies. The grass and land were very good, but the timber not of any value, being chiefly willow and poplar. With the exception of very few similar spots, the whole prairie over which we passed to our crossing place on Red Deer River (about 40 miles above the forks of Red Deer and Bow rivers) is a sandy country, the grass very scanty, and no wood.

On July 15th we crossed Red Deer River, and followed along its south bank until we arrived opposite the site of where the old Fort called Chesterfield House once stood; with the exception of the bed of Red Deer River the whole of that region is valueless, the grass being very scanty and timber very scarce.

Having now reached the 110th degree of longitude, I considered the whole of that region sufficiently explored, being now within 30 miles to the westward of that point of the Bow River which we had reached from the eastward, at the end of September 1857.

The general barrenness and absence of valuable timber along this whole region of country, has been the cause of great disappointment to us, as all the previous accounts we had heard of the south branch of the Saskatchewan or Bow River, had led us to

believe, that it would have been a most desirable place for settlers, but having now examined all that river, we find the whole region from the elbow in longitude $107^{\circ} 37' W.$ up to the point where the meridian of $112^{\circ} W.$ intersects the "line of the woods," by no means a desirable district for settlement.

There is throughout the whole of this region a great scarcity of rain; but in a few places, here and there, where the land rises above the plain to the height of three or four hundred feet, good grass and some timber, as rough bark, poplar, and willow appear.

We were now not far from the Blood Indian Camp, pitched to the southward of us. July 19th we were visited by a great number of the Indians, headed by their two chiefs, all rode unarmed into our camp; they spent the day with us, and insisted on our riding with them the following day to their camp, where they received Capt. Brisco, Dr. Hector, and myself most hospitably. Their tents are the largest I have ever seen, some of them 30 feet in diameter and of a proportionate height, well supplied with kettles, dishes and spoons, and frequently with American luxuries, such as coffee and sugar. They trade at Fort Benton on the Missouri.

Our Blackfeet guides deserted us here, from fear of these Indians, which I did not regret, as I found them expensive and useless.

On 22nd July, we crossed to the south bank of the lower Saskatchewan or Bow River, by wrapping up our baggage in leather tents, so as to form them into circular boats, and swimming our horses across. From thence we proceeded in a S.W. direction to the Cyprées Mountains in longitude $111^{\circ} W.$ Here I had great difficulty in inducing my men to travel any further, they were literally terrified, but we forced them onwards. I told them they would have no pay nor any assistance back to their country from me unless the journey were performed, a threat they knew I would execute. I had already made an example of one of them when at the Hand Hills where I lost my old hunter, a Blackfoot half breed, who had faithfully followed me across the mountains and back to Edmonton last year.

He being an old man, I allowed him to return when all my persuasions and promises to induce him to advance had failed. I paid him up to the time he had remained with me, but the first man that proclaimed his intention to follow his example, I collared, kicked out of the camp, and refused his pay, as well as permission to return.

I am happy to say I was not obliged to adopt this course on any other occasion, but succeeded ever after in keeping my men together principally by ridicule and partly by persuasion.

The Cyprées Mountains in lat. $49^{\circ} 38' N.$, long. $110^{\circ} W.$ are a range elevated 1,600 feet above the level of the plains, covered in fine timber, abounding in excellent grass, well watered, and fairly though not abundantly stocked with game. They run nearly east and west, and are connected with the Côteau des Prairies about 40 miles to S.W. of the elbow of the south branch of the Saskatchewan which we reached previous to our return to the northward, in order to winter at Carlton in October 1857.

We remained some days in the Cyprées Mountains to hunt and make provisions. Here our bread and tea, which we had hitherto only enjoyed twice a week, was at length exhausted, save one bag of flour, which I carefully kept for the doctor's use on the west side of the Rocky Mountains, where I knew all other resources would fail.

From this point I deemed it advisable that Dr. Hector should start on a branch expedition, in conformity to my instructions from the Colonial Office dated 8th February 1859. I accordingly fitted him out with 16 horses, four men, and an Indian hunter, with instructions to proceed and enter the mountains by the "pass" he explored last year, and endeavour to discover and explore a route practicable for horses to the westward, by the valleys of Frazer and Thompson's Rivers, and to avoid the valley of the Columbia River. Also, that if he failed, he was to join me at Colville, but if he succeeded he was to go on to Fort Langley.

On 8th August, having converted the red deer and buffalo we had killed into pemican, we broke up camp. Dr. Hector started for the headwaters of the south branch of the Saskatchewan, and my two friends Captain Brisco and Mr. Mitchell proceeded southward to Fort Benton. Mr. Sullivan and I proceeded due west, nearly along the 49th parallel to the Chief's Mountain situated on the boundary line. It would be needless to occupy your time with a minute description of the country traversed by the 49th parallel of latitude, between longitudes $109^{\circ} W.$ and $113^{\circ} 50' W.$ It is a level, sandy, arid plain, the very insignificant tributaries to the south Saskatchewan were nearly dried up, appearing here and there in pools of water. The few swamps on which we were almost wholly dependent for water, with a few exceptions, were brackish and impregnated with sulphates, and the grass barely sufficed to feed the horses.

We crossed the mountains easily in $2\frac{1}{2}$ days from the place where we abandoned the carts.

On the 18th of August we arrived at two Kootanie tents. These people possessed cows as well as oxen and horses, and had milk in abundance. We exchanged some tired horses with them, and traded a very lean young bullock, as our provisions were nearly exhausted.

My intention had been from this place to have turned to the northward, followed up the Kootanie River to the entrance of the new "pass" which I established last year, and thence to have endeavoured to cross the country, keeping north of the 49th parallel, as far as the Columbia River; but we learnt that there were no Indians then fishing on or near the source of the Columbia, nor to the northward of us on the Kootanie River, as they had gone to the Columbia Lakes; so not having sufficient provisions, nor seeing any probability of getting a supply, I determined on taking the Hudson's Bay Company's trail through the United States territory to Colvile, there to change horses, lay in a stock of provisions, flour and pork, and renew the explorations from thence.

We found the Hudson Bay Company's trail from the Kootanies to Fort Colvile far worse than we expected. It follows closely the river valley as far as the Lake of the Paddlers, in latitude $48^{\circ} 42'$ north, longitude $116^{\circ} 30'$ west, also, after leaving the river it runs altogether in American territory. We reached Paddler's Lake on 29th August, we found the Indians very badly off for provisions, and the fishing unusually bad.

In order to obtain a more extended knowledge of the country, I bought an Indian canoe at this place, and engaged two Indians to take me down the Kootanie River to the Flat Bow Lake, thence into the Columbia River to Fort Colvile, leaving the men and horses in charge of Mr. Sullivan, to proceed by land to Fort Colvile.

As the general course of the river now ran in a north-westerly direction, I was soon in British territory again, and arrived late in the evening of August 29th, at a camp of Flat Bow Indians.

These Indians, like the Paddlers, live by fishing, seldom hunt, nor indeed, is there much to shoot in their country, save at a short period in the fall of the year, when they are sometimes visited by wild fowl in abundance. I killed a few ducks and geese which, together with dry fish and fresh salmon, enabled my party to fare very well. On 4th September, I arrived, early in the morning, at Fort Shepherd, on the Columbia, a day's journey to the south of the Columbia Lakes.

This post of the Hudson's Bay Company on the right bank of the river, has been recently built in expectation of the time when the American Government will exclude them from trading at Colvile. At present, there are no goods, nor is any trade carried on there. The fort is about a mile north of the 49th parallel, and about half a mile north of the mouth of the Pendoreilles river, a tributary from the opposite side.

Here I first learned of the gold discoveries upon that river, the Columbia river and the Similkameen, where harvests as rich as those of Frazer and Thompson's rivers are confidently expected.

On Monday the 6th September, I reached Colvile. Mr. Sullivan and the land party had already arrived the day before. They had suffered severely from want of provisions; the berries which made into cakes, and which are the principal food of these Indians, had disagreed with them very much, and caused an attack of cramps in the stomach, which gave them great uneasiness. The whole party were most hospitably received by Mr. McDougall, a settler in Colvile valley; a little laudanum and brandy, with good wholesome food soon restored them all.

I found the United States mail, via California about to start, time did not permit me a fuller report of myself and my companions than my letter to the Colonial Office, bearing date 6th September, 1859, which was confined altogether to the monetary matters of the expedition.

On my arrival at Fort Colvile, a letter from Sir George Simpson, Governor of the Hudson Bay Company's territories, purporting to be a circular, and addressed to George Blenkinsop, Esq. (officer in charge of Fort Colvile) was read to me, by which I learnt with surprise, that all the engagements of the Hudson Bay Company, to furnish provisions and necessaries to the expedition, as well as their undertaking to honour my drafts on them for wages of men, &c. had been retracted.

With respect to the monetary matters of the expedition, I understand that the Hudson Bay Company are pressing at the Colonial Office for payment of an account amounting to $3012\text{l}.$, but I cannot understand why the Hudson Bay Company have not submitted that account to my inspection, previous to their demand for payment. I have as yet, received only two priced accounts of the Hudson Bay Company, each of which I promptly paid by bills on the Paymaster General.

The inconvenience of delay at present experienced by the Hudson Bay Company in the payment of their accounts, is entirely owing to an arrangement made by Sir George Simpson, viz. :—at each of the forts, where supplies are furnished to the expedition, I am also furnished with blank or unpriced bills for my signature. These unpriced bills are then forwarded to Sir George Simpson, to be priced, and I claim on the part of Her Majesty's Government, the right of seeing those bills after they have been priced, and previous to their being paid; for this reason I have more than once reminded Her Majesty's Government, not to pay or allow to be paid, any sums of money for the purposes of the expedition under my command, save those drawn by myself on the Paymaster General.

In addition to this obvious reason, there is another to be urged, viz.—The Company have agreed to take back all the goods remaining over and above those that have been sent up the country for the use of the expedition, which will considerably reduce the sum due to them, and enable me (when the Cr. as well as Dr. side of the account is made out) to draw Bills on the Paymaster General for the balance.

I am happy to say that I have not met any inconvenience in the prosecution of my searches from this point (Fort Colvile) in consequence of Sir George Simpson's prohibition to render us further assistance.

Mr. Blenkinsop, the officer in charge of the fort is himself a merchant, and has most kindly undertaken to furnish us in every way on his own private account, and accepts my bills on the Paymaster General, to defray the expences of the expedition.

It gives me great pleasure to be able to inform Her Majesty's Government, that my Secretary, Mr. Sullivan's, and my own endeavours to find a route practicable for horses from Edmonton westward across the Rocky Mountains, as far as the longitude of Fort Colvile, and entirely within British territory, have been perfectly successful. In addition to this, I pursued my way for more than 50 miles to the westward, still north of the 49th parallel, until I arrived and terminated my explorations on the 11th of October, by reaching the camp of the United States Boundary Commissioners in longitude $119^{\circ} 30'$ west.

I shall now endeavour to submit a detailed account of these explorations as briefly as possible, also Mr. Sullivan's description of that portion of them which was entrusted to him.

On 11th September I despatched Mr. Sullivan with orders to recommence on the 49th parallel at Fort Shepherd, there to "cross the Columbia River, and proceed from " the mouth of the Pendoreilles River in an easterly direction to that point on the " Kootanie River where our explorations terminated in the season of 1858, so completing the route across the country from the western base of the Rocky Mountains to " the valley of the Columbia."

On 14th September I started myself for Fort Shepherd there to recommence on the 49th parallel, and endeavour to make my way to the westward until I fell on the trail of the Hudson's Bay Company, which bears to the northward, passing over the Cascade Range at Mansen's Mountain.

I secured the services of an old Blackfoot half breed hunter together with two of his own horses, which were in much better condition for the severe journey I was undertaking than mine, and was accompanied also by an Indian; we three started on horseback and carried our provisions on two pack horses.

On the 17th September we left Fort Shepherd, crossing a country of wooded hills, the first three ranges of which we crossed without much difficulty. I could not ascertain their exact height, having no barometer, but they probably averaged between 800 and 1,100 feet. We then camped on the edge of a small lake of an insignificant size, and where we had a sufficiency of water. To reach this lake I had to cross the 49° N. about half a mile to the south. Distance made seven miles.

September 18th.—Started at 7 A.M. After breakfast returned a little to the northward and pursued a western course through the hills. Latitude at noon $49^{\circ} 0' 15''$ N. After this we had to cut our way with axes through a country which, although not impassable to horses, presented great difficulties in the accomplishment of a road. We worked till 6 P.M., when we camped, having found water but no grass for the horses. Made three miles.

September 19th.—Breakfast early; started at 7 A.M.; the chopping and climbing very severe; day cloudy, could not take the latitude which from our course was to the northward of last night's camp. We continued alternately chopping through 20 or 30 yards, then jumping and driving up the horses, but before we arrived to where there was grass the Indian's horse failed and could proceed no farther; but soon after this we came to a small swamp, where by great exertion we brought and left him. In the afternoon one of the mares rolled down a precipice, pack and all; we climbed down and carried up her

load, and by taking a circuitous route brought her up again. Here the Indian declared he could not stand the work longer; took off his coat and shirt (payment made in advance for the trip), threw them back to me and departed. We allowed the horses to feed for a short time, then descended a deep ravine, where we found no grass for the horses. Here we camped having made four miles.

September 20th.—We breakfasted before sunrise, commenced to chop through the fallen timber, which was terrible; we had to ascend a mountain about 1,200 feet high, which was both steep, rocky, and densely piled with fallen timber; we reached the summit a little after five; came down an easy descent and along a valley, and camped about 8 P.M. Made five miles, finding both grass and water. Here our Indian returned to us; I received him kindly, restored his property, and he continued faithful to me throughout.

September 21st.—Rained hard all night. The horses suffered so much from want of food that I determined to remain there a day to recruit them. Lat. $49^{\circ} 3' 10''$ N.

September 22nd.—Our labours not so severe; the mountains not so steep, and the fallen timber not so heavy as heretofore. Passed the horses over one very bad place, across a face of rock. This place at first appeared impassable for horses, but by availing ourselves of the slate shingle, which we levelled with our hands, building it up in some parts and rolling it over the precipice in others, we made a causeway and passed triumphantly. Camped on a little tributary to the Columbia, called Sheep River. Made seven miles.

September 23rd.—We had some difficulty in crossing Sheep River, after which very heavy timber to cut through. Found grass at noon. Camped; made one mile, but proceeded to chop for to-morrow's journey. Lat. $49^{\circ} 2' 44''$ N.

September 24th.—Crossed the second fork of Sheep River; ascended about 1,100 feet of mountain, very grassy in many places; rode along the crest of the hill in a north-westerly direction, afterwards in a westerly. Made nine miles, and camped at half-past four p.m. Here there was grass but no water. Lat. $49^{\circ} 5' 19''$ N.

September 25th.—A good deal of chopping and climbing in the latter part of the day, but evidently the worst of the journey was then over. Made about nine miles.

September 26th.—Started very early. It had rained all night; made more than three miles before breakfast. Our course continued to wind through a valley considerably to the north of west, and then to ascend a grassy hill to the height of about 900 feet. Proceeding along the crest of this hill for several miles, we at length came in sight of a lake called by the Indians Lake Nichelaam, to which they repair to fish late in the autumn from the south, and to which an Indian trail forks off from the Colvile road. My companions were greatly rejoiced to find themselves once more within a mile or two of a known piece of country. My two mares here broke down for want of food, want of water, and the constant jumping over the fallen timber. One of them from the first start was not previously in sufficiently good condition for the trip, the other, unfortunately, owing to the constant jumping, slung her foal; we were obliged to abandon them. We had now but Pichena's two horses remaining, and we endeavoured to descend the mountain to the lake that evening. Not being able to accomplish this, we were obliged to camp in the cliffs without water, and consequently without anything to eat; having nothing but flour we could not cook it. Made 11 miles.

September 27th.—Since yesterday at 4 P.M. our course has been S.W., reached the southern extremity of the lake at half-past 8 A.M. Could not obtain the latitude at noon. It rained hard last night, snow fell in the mountains. This lake (Nichelaam) is about 7 or 8 miles long, and from 2 to 3 wide, surrounded by mountains rising above its surface from 700 to 1,100 feet in height. After breakfast, struck on an Indian trail, leading south, which we rightly guessed would take us out on the road to Colvile, distant about 50 miles. I determined to go to Colvile, obtain more horses, and return again to the lake, from thence to renew my exploration to the westward, we camped at the Colvile Road, which follows the Ne-hoi-al-pit-kwu or Colvile River. About 8 miles S.E. from the lake where we found good grass we encamped, cleared up at night, took observation lat. $48^{\circ} 57' 58''$ N., therefore southern extremity of lake is somewhat about 4 or 5 miles north of the line.

September 28th.—Started early, camped not far from Colvile.

September 29th.—Crossed the Columbia River, reached Colvile at 8 A.M.

On the 5th October, I again started from Colvile for Lake Nichelaam, accompanied by two half-breeds and an Indian.

October 7th.—Reached the southern portion of Lake Nichelaam, where I had left off on September 27th ultimo. Took observation for latitude $49^{\circ} 4' 30''$ N.

October 8th.—Started on foot to ascend the hills, on the hills on the west of the lake, carrying a couple of days provisions with us, and sending the horses round by the road to meet us, a little on the west side of north fork of the river.

My reasons in sending the horses round, were—not because I deemed the section of country with which I was engaged impracticable for horses, but the fallen timber was very dense, and required more time to chop it through than I at that time thought I could spare. We had a great deal of scrambling through this timber, and passed along a valley in direction W.N.W., and 4 P.M. reached a height of land commanding a fine view of prairie country, affording a choice for continuing a road in several directions. We commenced our descent to the S.W., came out on the Ne-hoi-al-pit-kwu, a little below the N. fork at 9 A.M. The horses arrived with my sextant at 11 A.M., and at noon I determined the lat. $49^{\circ} 2' 20''$ N.

October 11th.—Started early, pursuing our western course again along the Ne-hoi-al-pit-kwu, and shortly caught sight of a soldier in American uniform in pursuit of some wild ducks on the river; he informed me that the surveying party were camped a little further to S.W. Following his directions, I soon came in sight of their observatory, and rode into their camp. I was most hospitably received, pressed to remain and pass the day with them, an invitation which I gladly availed myself of.

I was greatly pleased with the instrument with which they carried on their observations for latitude. I am not aware that the instrument is known or used in England. It is an American invention called the zenith telescope, used in observing pairs of stars (one north the other south of the zenith) of nearly the same declination. A far greater number of results can be obtained in a given period than by means of the transit instrument, which I believe (but I speak under correction) is the instrument generally used in our service.

I understand there are three parties on the American Boundary Survey, each party is supplied with an observer, computer, and topographer. The party I had the pleasure of visiting were civilians, and Mr. Harris, the gentleman in charge, was an able and experienced man. The following day Mr. Campbell, the Chief Commissioner, accompanied by his Secretary, Mr. Warren, with Lieutenant Parke of the United States, Topographical Engineers, and Mr. Gibbs arrived in Mr. Harris's camp. I returned with them by the Colvile road to the fort, and enjoyed their frank hospitality and most agreeable society. I could not learn much respecting Colonel Hawkins, except that he had started for England on a question concerning the Island of San Juan. The party of our engineers under his command have had a great many difficulties to contend with.

Having now terminated my account of the explorations effected by myself from the Columbia river westward to where the 49th parallel intersects the Cascade Range road, I beg leave to submit the report of my Secretary, Mr. Sullivan's explorations from the same starting point on the Columbia River to the point where we returned to recross the Rocky Mountains in September 1858.

Fort Colvile, October 1859.

Sir, Your instructions of 8th September, 1859, directing me to start from Fort Shepherd, and explore the region of country to the northward of the 49th parallel of north latitude, and to the eastward of the fort, have been carried out, and I am rejoiced to say, with a result far more satisfactory than at first sight I was led to anticipate.

I beg to submit for your information, the following detailed account of my branch expedition, also a sketch map, showing the route we pursued.

On September 11, I started from Fort Colvile, lat. $48^{\circ} 37' 46''$ north, and arrived at Fort Shepherd on the evening of the 13th. At this place I engaged three Sanihk Indians, and despatched two more of the same tribe in search of the only Indian who was said to know the country that I was about to explore. Previous to starting also, I obtained observations for latitude, and found the fort to be three quarters of a mile to the north of the frontier line; consequently the point at which the Pendoreilles joins the Columbia River, is in British territory. Having crossed the Columbia on the 15th, we then proceeded up the valley of the Pendoreilles for twelve miles, and encamped to await the arrival of our Indian guide. An observation at this place gave latitude $49^{\circ} 0' 36''$ north. Six miles still further up the valley, and we struck the mouth of Salmon River, a small tributary of the Pendoreilles. Up to this point the whole of the river valley is in British dominion, but beyond, the Pendoreilles is in American soil.

The gold mines on this river are at present confined to this small portion of the valley, and the miners are engaged in mining the flats and bars of the river only; they realize from 15 to 20 shillings per day with the rocker, and from 35 to 40 shillings with sluices.

They are prevented from reaping rich harvests owing to the quantity of water in the stream, as well as the absence of capital for the purposes of ditching and carrying water to advantageous places in the neighbouring mountains.

Every prospect is in favour of the country being auriferous; the gold becomes coarser the further the miners advance into the bed of the stream, and the adjacent mountains possess every indication of containing gold.

Speculating companies, such as those that obtained large dividends from working the mountains of California, have not as yet commenced operations in the mountains of this part of the country, but from all accounts they would be amply repaid, were they to turn their attention to the mines on the Pendoreilles river.

From the isolation of the mines, provisions and every other necessary bring enormously high prices, and the consequence is, that the miners here, who are not in possession of more extensive means for mining than by the common rocker and sluice, find great difficulty in doing more than just to provide for the passing day.

The gold found in this part of the country is, to use a miner's expression, "lighter" than Californian gold, that is, a much larger bulk of Pendoreille gold is requisite to weigh an ounce than that of California. Indeed, I have heard that Californian gold is one-eighth heavier.

The bed rock on the Pendoreilles, as well as that on the Columbia, between Colvile and Fort Shepherd, is a blue slate with a large admixture of quartz veins. The immediately overlying rock is a very hard grey granite. In many places, mica is in great abundance, and up the Salmon River especially, mica is largely distributed.

On our arrival at this river, I "prospected" myself in the stream, and washed out $2\frac{1}{2}$ d. in one pan of dirt, and 2d. in another. One of my Indians, more fortunate than I, picked up in the crevice of the rock, a piece of gold which valued 15s. 6d.

Here our party experienced great difficulty in pushing through the masses of fallen timber, and dense undergrowth, which latter was so tightly interlaced as almost to defy the power of the axe altogether. My Indians were in favour of returning to the fort, I told them that it was my determination to advance, and at once packed the horses with all the articles that were not absolutely necessary for the journey, including about half the provisions with which we had left Fort Colvile, and sent them back to Fort Shepherd under the charge of a half-breed, who was mining at the mouth of the Salmon River. Then, dividing the remainder of our provisions and baggage into as many parcels as there were people in the party, I told the Indians that both Mr. Margary and I, intended to carry the same weight as they, so that the sooner we started the sooner the journey would be done.

Mr. Margary, the gentleman belonging to the Hudson Bay Company's service, whom Mr. Blenkinsop had desired should accompany me, was of great assistance on this as well as on many subsequent occasions; he explained to the Indians my determination, and took to his pack as cheerfully as he would have done to a more pleasant occupation.

It was with reluctance at very best, that the Indians followed our examples; at length, all our loads strapped, we forced our way through the woods, and enjoyed a good supper and a most comfortable night's rest at the forks of Salmon river.

It would be needless to journal the account of each day's march here, and it will suffice to inform you, that in five days from this point, by following the more easterly branch of the Salmon River we had attained the summit of the dividing ridge between the Columbia and the Kootanie, or Flat Bow River, at an elevation of 1500 feet above Fort Shepherd. An observation for latitude here, assured us that we were still in British territory, it being $49^{\circ} 5' 24''$ north, and judging from our course, I consider, that we did not dip to the south of the 49th parallel throughout the whole of the distance from Fort Shepherd to the height of land.

The ascent to reach this highest point of the dividing ridge is very gentle, and there is not the slightest obstacle to prevent the accomplishment of an excellent road. The descent, on the contrary, to the stream which is tributary to the Kootanie or Flat Bow River, is rather abrupt, but fortunately it is only for about 300 feet, when the river valley is reached.

At the height of land I was in hopes that we had struck an Indian trail, when suddenly our guide informed me that we had been travelling for the last half-hour, not upon an Indian, but a caribœuf road, and that now we were forced to leave it. Caribœufs frequent this part of the country in large numbers, as the woods are traversed by their beaten paths. They are induced to visit this tract of country in order to feed upon a very large leaf which grows in great abundance on the moist lands high up in the mountains.

From this place a most extensive view of the country was obtained; the rugged mountains to the south-eastward, which border the right bank of the Pendoreilles in the American territory, rising to an elevation of about 2500 feet, and clothed to their summits by dense pine forests, seemed to bid no hopes to strangers passing there; while the gentler undulations from the Columbia valley up to this point, offered no impediments but those resulting from decaying masses of vegetation, the young scrub pines which had risen on their ruins, and the stunted undergrowth; obstacles which disappear entirely before the woodman's axe.

On September 24th, we made a very long and tedious journey in our descent towards the Flat Bow Lake, crossing and re-crossing the stream to avoid fallen timber, and such obstacles as could be avoided at the expence of a little wetting, which, considering the quantity of rain that fell for a few days previous, was productive of little inconvenience. At nightfall of this date, the rain commenced in earnest, we were very comfortable however, having constructed an excellent shelter with the branches of the Cedar, and being provided with as much wood as we were disposed to burn.

On the 26th September we arrived at the Flat Bow Lake, and an observation showed us to be in lat. $49^{\circ} 13' 7''$ N., or 15 miles to the north of the boundary line. We were all glad to have come to the end of our journey, (as far as walking was concerned,) for we were all more or less fatigued, and needed moccassins.

I should remark here, that that piece of country extending from the summit of the dividing ridge to the shores of the Flat Bow Lake, presents much greater difficulties than the slope towards the west; but at the same time I consider that with a sufficient number of men for the purpose of clearing, and the time necessary for such an undertaking, I might have succeeded in making a very practicable trail for my horses. The greatest obstacles throughout the road from Ft. Shepherd, eastward to the Flat

Bow Lake, is fallen timber; and great advantages for a road exist, since the traverse of this piece of country was effected, by the valleys of two rivers, the whole of the way.

The land to the southward of the Flat Bow Lake is flat and swampy, and preserves this character to the distance of 25 miles to the south-eastward of its southern extremity, where a range of mountains extend along the course of the Kootanie River, and prevents its continuation. The river itself has no current in this part of its course, and on either bank there are numerous sloughs and swamps teeming with wild ducks, geese, and other aquatic birds, that make these marshy lands a special rendezvous in the fall of the year, when they desert the less genial climate of the north.

From these swamps also, the Kootanie Indians obtain the klusquis or thick reed, which is the only article that serves them in the construction of their lodges, and the klusquis is an article of barter with them to other tribes whose lands do not produce this necessary.

As soon as we arrived at the lake we were met by the Kootanies, and treated very hospitably. They inquired as to the object of our visit, and furnished me with a large amount of information relative to the country to the eastward.

By referring to the sketch map accompanying my letter, you will observe that I have laid down a road as "Kootanie Trail to the Columbia Lakes (abandoned)." This road has been for many years out of use, it is altogether in British territory, but according to the accounts of the Indians, two very precipitous mountains have to be crossed before arriving at the origin of the Columbia river. I expressed a desire to travel this road, and was assured that at present it is entirely impracticable for horses. The Kootanie chief said, "if you take all the young men of my tribe and furnish them with axes, they will cut through but a very small piece in a day, your camp fire of one night will be in sight of your camp fire the night following; the fallen timber is too bad, the trail that once was clear is now blocked up by reason of the fires."

The next road laid down, and which I have called "Mr. Sullivan's Trail," is the one which the Indians described as very practicable, and which, for many reasons, was the one adopted.

I made a few presents to the chiefs and principal men, and obtained from them the loan of four horses, and the services of two young men as guides. Our Sanihk Indians we left at the Flat Bow Lake, and supplied them with ammunition with which to support themselves during our absence. Our provisions were very small, consisting of 30lbs. of flour, (all my meat had been consumed,) 15lbs. of which I turned over to the two Kootanies, and retained 15lbs. for Mr. Margary and myself.

At noon of September 30th, we left Flat Bow Lake, and keeping a south-easterly course for a few miles, crossed the Kootanie River in lat. $49^{\circ} 3' 6''$ N. by observation, and encamped here for a whole day, having lost one of the horses.

Pursuing our south-easterly course for about nine miles, we struck the road laid down in the sketch map as "Mr. Sullivan's trail," and after making an ascent of 500 feet, we descended and encamped at nightfall in a small prairie affording excellent water and grass for our horses.

The following morning our horses had strayed backwards on the track towards the Kootanie camp, we were accordingly delayed from starting till 2 p.m. The day was cloudy, so that I was prevented from obtaining the latitude, but from my dead reckoning I consider that our encampment was about one or two miles to the north of the 49th parallel.

By reference again to the sketch map, you will observe that there is a tract of country indicated by "Practicable Trail." I wish to remark that this trail is not really in existence, but from the nature of the country I am inclined to believe that a road may be made in that direction with no degree of trouble, and which would have the material advantage of throwing the whole road altogether into British dominion, as well as the secondary advantage of escaping the ascent of 500 feet alluded to above. Indeed, the mountains here may be penetrated in many directions; they do not assume impracticable shapes, the highest does not exceed 2000 feet, many do not attain the altitude deserving the appellation mountain, and their gently sloping sides with wide valleys between, seem to offer facilities for roads in many ways.

On the evening of the 4th of October, we struck a tributary to the Kootanie River, going off to the south, and proceeding a little distance up the stream, we encamped on a fine prairie close to its right bank.

October 5th we were off before sunrise, and followed up the stream through a most beautiful valley, offering no obstacles whatever to our progress, water and fine grass everywhere, and we passed the best camping places that I have seen to the west of the Rocky Mountains. The Kootanie Indians resort to this part in search of beaver and caribous, and from the indications at their old camps, a large party of them had preceded us by about four or five days. An observation for latitude showed us that we were keeping to the north of the frontier line, being lat. $49^{\circ} 6' 48''$ N.

October 6th we reached the highest point since leaving the Flat Bow Lake. At noon an observation for latitude was $49^{\circ} 15' 14''$ N., and at our night camp of this date we were at least 10 miles still further to the northward, for we made a very long journey from our dinner camp. Here we had arrived at the most easterly of the two small lakes, from which the tributary stream issues to join the Kootanie or Flat Bow River. I estimate the elevation to be 3300 feet above Fort Shepherd.

Our Kootanie guides now gave us the welcome intelligence that we were only one day's journey from the crossing place on the Kootanie River, where the Indians traverse the stream on their road to trade at the small Kootanie post situated near the western base of the Rocky Mountains, and at the distance of five miles to the south of the 49th parallel. I ascended a mountain and saw the heights which border the right bank of the Kootanie River, and I estimated the distance at 12 miles, to which point a broad open valley extends without any obstruction.

Up to this point, since leaving the Flat Bow Lake, we had travelled a most practicable piece of country; a good horse trail exists, and with the greatest ease a waggon road may be accomplished. Indeed, in the event of the requirements of commerce, as far as my experience of the mountains is concerned, I could not point out so extensive tract of country where a railway may be brought with comparatively so small expense. There is no one place on the whole of the trail between the Flat Bow Lake and the borders of the Kootanie or Flat Bow River, where a sudden ascent of 150 feet is requisite.

The whole ascent to the two lakes is small and very gradual, and the valley of the tributary river is wide open and flat.

Our provisions were entirely exhausted on our arrival at these two lakes, and the Indians told us that for the next day's journey on to the Kootanie River, a large quantity of burnt timber was lying across the road, and there was a possibility on this account that we should require two days to cut our way through, but they assured me at the same time that it was only timber that would be troublesome to us, nothing beside lay in our way.

Great dependence, as you are aware, can be placed on the word of an Indian of this tribe; the Kootanies never steal, rarely lie, and are decidedly the best converts to Christianity of all the Indian tribes among whom our travels have led us.

I was very reluctant to abandon this 12 miles of country, but under the circumstances there remained but one alternative, viz., to retrace our steps.

We had been living on two meals a day on the upward journey, and as our Indians were certainly gifted with most extraordinary appetites, their small supply of flour was soon consumed, and they made demands on our own little store, which we could have easily managed without their assistance. So now we were entirely dependent on the few small pine pheasants which chance might throw in our way.

I should certainly not have returned were it not that I was thoroughly convinced of the entire practicability of a road from that point on the Kootanie River, where the expedition penetrated in September 1858, right up to Fort Shepherd in the valley of the Columbia, more than three-fourths of which might be rendered available for a railway, and considering the stupendous triumphs of engineering art in modern times, I should be sorry to add that the remaining fourth is beyond the bounds of practicability.

We returned to the Flat Bow Lake on the 10th of October very hungry, having fasted two days, and found our Sanikh Indians anxiously awaiting us. The following day I hired two bark canoes, crossed the Flat Bow Lake, descended the Kootanie River, from thence into the Columbia, and arrived at Fort Colville on 15th October.

In conclusion, I beg to express my sincere thanks to Mr. Margary for his most friendly society and cheerful assistance throughout a trip which I shall ever remember with unspeakable pleasure, and I trust that hereafter I may hear of him occupying a high position in the service of the Hudson Bay Company, for which both by his intelligence, energy, and management of Indians, he is eminently fitted.

Capt. J. Palliser,
Commanding Expl. Exp.,
&c. &c. &c.

I have, &c.
(Signed) JOHN W. SULLIVAN,
Secretary.

The whole of the country which I have travelled from the Columbia to the westward is auriferous; there was hardly a creek of any importance in which more or less gold cannot be washed. This has rendered the prices for all articles of clothing, food, &c. enormous, as you will see by glancing over the accounts for the articles furnished to the expedition on this side of the mountains. Flour is now 2*l.* 17*s.* a bag of 100 lbs. and Pork 2*s.* 11*d.* per lb. Articles of clothing and food are the only pay with which you can engage Indians for a journey. Money cannot circulate in the country owing in a great measure to the absence of coin.

Horses which I had been led to suppose would have fetched a high price in this part of the country, change hands at exactly one third of their value east of the mountain. The American soldiers brought up a large number here (having been especially allowed to do so); after their arrival, being compelled to sell, horse, saddle, and bridle went together for 5*l.*, the price of a new Spanish saddle!

Under such circumstances, it was utterly impossible to form even an approximate estimate of the expenses that I have since been obliged to incur. But I can only say, that I have always endeavoured and will always continue to confine the expenditure of public money within the smallest limits.

Gold commences to be found abundantly on the Similkameen; all those that come from thence seem impressed with the idea that it exists in great abundance somewhere in the mountains surrounding its source. A man who arrived here only yesterday informed me that he had washed out 2 ounces of gold dust in one forenoon. I regret that I have neither time nor funds to make a tour through the valley of the Similkameen. I am credibly informed that it abounds in fine timber, and a most fertile soil, and is a far more eligible place for settlers than the valley of the Columbia.

If I may venture an opinion concerning a piece of country, over which I have not myself travelled, also concerning which I can only speak from collected information, I would suggest that the easiest way to open a road in the west of this country from the sea would be from Fort Hope to follow up the valley of the Fraser River, thence a little south of Shooshewap Lake to the Great Okanagan, passing on either side of that lake, and thence to the western shore of the more northern of the Columbia lakes, probably in latitude 50° 20' N. about. A steamer down the Columbia lakes would connect this road with the south extremity of the lakes, only a very short distance, say 15 miles, from the line of country already explored and described in Mr. Sullivan's report.

One objection to this line of route would be that it would not afford as many advantages to agricultural settlers as one passing the Cascade Range over or near Mansen's mountain down into the Similkameen valley.

Should such a very arduous undertaking be attempted, the best course from Fort Hope would be to ascend the valley of the Kleh-Kwunnum till you fall on the Whatcomb Trail, which you follow up for a short distance, leaving this to pursue the valley of the Skagit River, cross the mountains there to the head waters of the Similkameen, and down the valley along the Hudson's Bay Company Trail to the western extremity of our explorations.

I hope, however, to obtain additional information from Doctor Hector, whom I expect by this time to have arrived at Vancouver, after having traversed the country in question.

Snow has commenced to fall, the season of 1859 is terminated, and in conformity with the directions of Her Majesty's Government, I am drawing the affairs of the expedition to a close. I shall start, accompanied by Mr. Sullivan, next week for the Dalles; we travel on horseback a journey of about 16 days, thence we shall take the steamer for Vancouver, where I hope to meet Dr. Hector. I shall then have the honour of again communicating with Her Majesty's Government, and shall draw on the Paymaster General for balance of salaries, homeward expenses, &c.

I have, &c.

Her Majesty's Secretary of State
for the Colonies.

(Signed) JOHN PALLISER,
Commanding Exploring Expedition.

No. 4.

No. 4.

COPY of a LETTER from Captain PALLISER to Her Majesty's PRINCIPAL
SECRETARY OF STATE FOR THE COLONIES.

London, July 8, 1860.
(Received July 10, 1860.)

MY LORD DUKE,

In reference to my letter of 22d October 1859, I beg leave to draw your Grace's attention to this fact, as one of the results of the expedition under my command, viz., that we have succeeded in finding a way from Red River Settlement across the Rocky Mountains to the mouth of Fraser River, entirely within British territory.

I did not deem it necessary to prosecute the exploration further than 119° of west longitude, because in that neighbourhood I fell upon the Hudson's Bay Company's track, bearing away over Mansen's Mount, altogether north of the boundary line; in other words, Mr. Sullivan and I explored and discovered a route connecting the Kananaskis's Pass of the Rocky Mountains with that point on the Hudson's Bay Company's trail over the cascade range, from which that trail passes, altogether through British territory.

This Hudson Bay trail, which is used for bringing in supplies from Fort Langley (on the west coast) to Colvile, crosses the boundary line for the first time in the neighbourhood of the Lesser Okanagan Lakes, in long. $119^{\circ} 10' W.$ Being already aware of this fact, and being subsequently confirmed in this opinion by Lieutenant Palmer, R.E., who made a reconnaissance of the Hudson's Bay Company's trail all the way from Fraser River to Fort Colvile, I did not think it necessary or justifiable to cross the Cascade Range so late in the season; such a course would have been attended most probably with the loss of all the horses, and no further increase of knowledge, with regard to this old established trail, than that already known to the Hudson's Bay Company, and already supplied to Her Majesty's Government by Lieutenant Palmer.

Although I consider this fact established, viz., that a line for a route has been discovered from Red River Settlement to the west coast of the continent, and that line moreover entirely within British territory, yet I wish distinctly to be understood that I think it far from being the best that could be discovered. Time did not admit of a series of attempts in a more northerly direction.

Dr. Hector's explorations, when within 60 miles of his exit on Thompson's River, was prematurely closed by the advance of winter and the absence of provisions, while forcing his way through timber so thick that he could not penetrate faster than from three to four miles a day, and for a more detailed account of which I refer you to his report accompanying this letter.

The quantity of territory east of the Rocky Mountains explored by the expedition in the season of 1859 was so large that very little time remained for the further prosecution of our searches to the westward of the Columbia River, in a country where winter advances very rapidly.

I very much regretted that time did not enable me to recommence at the forks of the Columbia and McGillivray's River, and in a canoe to ascend the Columbia, *said* to be navigable for steamers all the way up to the great Columbia Lakes, to a large table land, along which it is *said* that horses may travel, passing either north or south of the Great Okanagan Lake to the forks of the Fraser and Thompson's Rivers. I only speak of the natural advantages of this line of route from hearsay, but my informants were an intelligent officer of the Hudson's Bay Company, Mr. McDonnell, who was for many years in that country, also several half-breeds who have travelled there with horses and mules. I have already alluded to this proposed route at the termination of my letter dated 22d October 1859.

The connexion of the Saskatchewan Plains east of the Rocky Mountains with a known route to British Columbia may be considered as the last of the results of the expedition.

I shall now give but a slight sketch of our journey to Vancouver's Island, as it was through American territory. We started from Fort Colvile on 2d November 1859 with horses. Although the road is quite as good and better than many in civilized countries, yet the country beyond the immediate valley of the Columbia at Fort Colvile is quite unsettled, and we had to carry our provisions along with us, and continued, as we had hitherto done, to camp out at night.

We assembled at Colvile (after the termination of our several branch expeditions), in lat. $48^{\circ} 37'$ N., long. 118° W. Fort Colvile is situated on, perhaps, the only spot favourable to agriculture for many miles of country through which that river flows, being an alluvial tongue of land formed by a bend of the river. Many emigrants came over some years ago from Red River under the erroneous impression that there was much land in that country available for the purposes of agriculture; they were, however, disappointed, and wandered in search of land southwardly, a few only settling on a tributary of the Columbia, the valley of which affords a narrow strip of arable land for about 30 miles south-east of Colvile. The rest finally settled at Walla Walla on the Willamette valley.

The discoveries of gold on the Similkameen has raised the price of provisions very considerably; and that, with a large camp of American troops, render the supply very inadequate to the large demand upon its produce. Consequently large trains of American waggons ply up and down between the Colvile camp and the nearest points on the Columbia accessible for steamers, which vary according to the state of the water. Since the discovery of gold on the Similkameen, the mines on Clark's Fork, discovered in 1852, have been comparatively deserted; some few miners still remain there, however. The mines on Clark's Fork have this disadvantage, from the steep and rocky nature of the banks it is difficult to gain access to the bed of the river from which the gold is procured. A project therefore has been for some time in contemplation, viz., to cut off all the water from the river, and send it into the Spokane by means of a canal running in a southerly direction to a point on the Spokane, where these two rivers are only 35 miles apart. This is a project on a scale worthy of California, but at present far beyond the means of settlers and miners in the country.

On 2d November we commenced our journey homeward, our party quite assuming the dimensions of a caravan, as we were accompanied by the family of Mr. Blenkinsop, under the charge of his second in command, Mr. Margary. We followed the wagon road, which has been constructed at great expense for the use of the American army. It leaves the Columbia at first following the course of Mill Creek; the first 60 miles lay through magnificent forest, composed of the "pinus ponderosa," a tree which stands free of underwood, until crossing the Spokane, when we entered the Great Columbian Desert. This district of country, extending for about 160 miles, is composed of tabular flows of basalt, covered with loose sandy soil, supporting a scanty growth of bunch grass. So little feed is there, that in crossing this plain corn is always carried for the use of the animals. Water is only to be found at long intervals, and there is hardly any wood, a want which is severely felt by the traveller, as there is no "bois de vaches" to supply its place.

After crossing Snake River, the southern branch of the Columbia, a swift and magnificent river a half a mile wide, and flowing through a wonderful rent in the basaltic rocks, which form these plains, we arrived at Walla Walla, where there is a large garrison of American troops. Here we were kindly entertained by Capt. Dent, the officer commanding; and the other officers attached to the division. It is necessary to keep this

large corps at Walla Walla, in order to protect the settlers from the incursions of the Indian tribes on the border, who in this part of the country are hostile towards the Americans. Only a few years ago a party of American troops experienced a severe repulse in the neighbourhood of the Spokane River, which, however, was amply avenged during a campaign of the ensuing summer. We had experienced very severe weather in travelling to this place, bitter cold, accompanied with heavy falls of snow; this, together with the want of food, had so reduced our horses, that we were strongly advised not to attempt to proceed any farther with them, as there was much high ground to be crossed, where we might be delayed by deep snow.

We accordingly left them in the hands of an agent for sale, dismissing the only man whom we had brought down from Colvile, and proceeding to old Walla Walla on the Columbia River, distant 30 miles. We had hoped to avail ourselves of the American steamer, which plying between this point and the Des Chutes, but unfortunately on our arrival the agent informed us that she had blown up.

We were now very much perplexed to know how to proceed with all our luggage, books, instruments, &c., down the Columbia; there were no boats, nor any Indians in the neighbourhood. At length some Indians arrived with the intelligence that a schooner was making its way up the river, and the American agent, who had become one of our party, calculated that the schooner would not arrive for some time, owing to the prevalence of a contrary wind and disadvantage of course up-stream.

It was now about the middle of November, and I feared being caught in the ice, I determined therefore to purchase two canoes from the Indians, and descend to the Des Chutes.

In order to carry out this plan we were obliged to leave our luggage, such as books, maps, instruments, &c., with the agent, to be forwarded by the schooner whenever she should return. We preferred incurring this delay to running the risk of taking our baggage in the canoes, which on this part of the Columbia are very small and of the most wretched description. The whole of this district is devoid of timber, therefore the Indians depend solely on the logs of drift-wood which float down from the Columbia's upper waters from time to time.

Of these they take the best suited for the purpose, burning and hollowing them out, and at best they are always small, misshapen, rotten, and dangerous. We ran down to the Des Chutes, 140 miles, in $2\frac{1}{2}$ days, arriving there at 10 o'clock at night on the third day, after running the rapids by moonlight. We had engaged one Indian who knew the river to steer the foremost canoe. On this our last day in the canoes we found no timber on the banks of the river to light a fire and camp, consequently were obliged to push on far into the night. The ice actually formed around us as we arrived.

At the Des Chutes the Columbia falls in a succession of rapids as far as the Dalles, and the communication is open between those places by an excellent wagon-road. The distance between the Des Chutes and the Dalles is about 12 miles. At the Dalles is an American steamer, plying between that place and the Cascades, where the Columbia falls into rapids for only a very short distance, not exceeding two miles. On leaving the steamer at the Cascades, the passengers walk along a boarded platform, on which also is constructed a train to convey the luggage to the other steamer in waiting at the lower end of the portage, from which point the navigation is open to the Pacific.

It may not be out of place here to diverge for a little from the account of our homeward journey, and give a description of the capability of the Columbia for steamer navigation, commencing from the mouth at the Pacific Ocean. From Astoria at this river's mouth it is navigable by steamers as far as the Cascades, a distance of 135 miles. Here a boarded portage and tramway not two miles in length enables the traveller to reach a second steamer, which runs up to the Dalles, distant about 48 miles. At this place a steep wagon road, which is kept in good order, takes the traveller to the Des Chutes, a distance of 12 miles, where a third steamer runs up as far as Old Walla Walla; this steamer however, when the occupation of the upper country by troops rendered it worth her while to take freight further up the river than usual, ran up to Priest's Rapids above the mouth of Snake River, and actually ran up Snake River itself, and found it navigable for a considerable way. Again, the Columbia River is said to be navigable from the Priest's Rapids to the mouth of the Okanagan River; and I have heard since my return that a steamer will be placed there by a private American Company. Above the Okanagan is a 10 mile rapid, and above this the river is said to have but one rapid to impede the navigation all the way to Fort Colvile. From the upper part of the Kettle Falls at Colvile there are but two portages interrupting the steam navigation to the mouth of the Pendoreilles River in British territory, and from this point I am credibly informed the

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river is available for steam navigation to beyond the upper of the two great lakes of the Columbia to a point where a road might be made across a level plain (as I have mentioned above) either north or south of the Great Okanagan Lakes to the forks of the Fraser and Thompson's River (see above, also letter dated 22d October 1859).

On 30th November we arrived at Vancouver, and were most hospitably received by Mr. Graham, the officer in charge of the Hudson's Bay Company's fort there. Vancouver is the head-quarters of the American troops stationed in Oregon, under the command of General Harney, whom we found shortly after his return from San Juan, and who received us most hospitably.

The Hudson's Bay Company's establishment at Vancouver is considerably reduced at present, and their American neighbours offer them great annoyances, even so far as seizing their landed property, by a process termed in American parlance, "jumping their claims." A good deal of correspondence was being carried on while I was there upon the subject.

The Willamet River flows into the Columbia at a short distance below Vancouver; on it is situated Portland, one of the most flourishing towns in Oregon. From this town there is regular steam communication twice a month to San Francisco. These ocean steamers also call at Victoria, taking passengers, and delivering British letters for Vancouver's Island.

The American steamers start from San Francisco, pass down the straits of Juan de Fuca, carrying the letters past Victoria, up Admiralty Inlet and Puget Sound, to Olympia, then on their return call at Victoria, Vancouver's Island, deliver the mail and land the passengers.

Embarking on board one of these steamers, Mr. Sullivan and I started for Vancouver's Island, leaving Dr. Hector at Fort Vancouver, with directions to wait one fortnight for the luggage, &c., and then to join us at Victoria.

At Victoria we found great commercial industry, and much promise of progress. The inhabitants are English, Scotch, Americans, Chinese, and Indians, who rove about the streets, the former seeking and commencing to find employment, the latter begging, drinking, and not likely ever to become useful to the community. A handsome serviceable wooden bridge, James's Bay, connects the Government buildings with the town. The Hudson's Bay Company have one of their forts or picketed enclosures in the centre of the town, splendidly supplied with almost every kind of merchandise. Besides this, warehouses, stores, and shops carry on a good business; money is worth about $2\frac{1}{2}$ per cent. a month, on good security; good tradesmen can find abundance of employment. As there is a great scarcity of women on the island, female servants are in universal demand, and obtain very high wages from 30 dollars to 50 dollars a month.

The markets are abundantly supplied with the best beef, mutton, fish, poultry, eggs, and vegetables.

The town when I left is not yet lighted by gas, but I have no doubt that will shortly be accomplished.

Esquimalt Harbour is about three miles from Victoria, where the "Ganges" (Admiral Baynes) and several other steamers are lying. Esquimalt is also the head-quarters of the Boundary Commission, under Col. Hawkins, and then under Capt. Haig.

We were most kindly and hospitably entertained by Governor Douglas, Admiral Baynes, and all the officers of the fleet; also by Captain Haig and his brother officers.

On the 5th January I despatched Mr. Sullivan to England, with directions to join me again as soon as I arrived in London; and waited myself for Dr. Hector's arrival in Victoria from the Columbia River.

Dr. Hector joined me at Victoria on the 16th January 1860, with news of the luggage being as yet safe, but frozen in on the Columbia, about 30 miles below old Walla Walla. I then despatched Dr. Hector at his own request, and in conformity with the wishes of Sir R. I. Murchison, to examine the coal structures at Nanaimo, and make a short tour in the vicinity of that portion of the island. He accordingly started with my servant, James Beads, in a canoe, with bedding and provisions for a week's trip. Although the time which I allowed Dr. Hector was but short, nevertheless he acquired much valuable information, and received every assistance from Mr. Nicol, the Hudson's Bay Company's officer in charge of the coal mines, in effecting his object.

Shortly after this I went myself to visit a part of British Columbia, and was most kindly and hospitably entertained by Capt. Parsons, Col. Moody, and the officers of the Royal Engineers quartered at New Westminster. This place is situated on the right bank of Fraser's River, about 12 miles above its bar. The bank chosen for the site of the town is very disadvantageous; first, on account of its steepness, and again by the

size and density of the timber, causing the clearance of it to become a matter of such an enormous expense as far to exceed the fee simple value of any land in a still unoccupied country. This advantage would be possessed, however, by New Westminster, should it ever become a British town, that Burrard's Inlet, which is a most excellent harbour, would be easily accessible from the town, seven miles over land. The site, distant on the river about $1\frac{1}{2}$ miles above the town, chosen by Col. Moody and the engineers as the site for the barracks and officers' houses, is preferable to that chosen for the site of the town. But it is worth serious consideration, whether it would not be more advisable to proceed about 18 miles up the river and choose the site where Fort Langley now stands, where there is a good deal of naturally cleared land, and the timber not formidable. The site of Fort Langley for a British town would have this disadvantage, it is on the same side of the river as the American boundary line.

On 14th March our baggage arrived in Victoria, and almost at the same time with the American steamer for San Francisco. By some exertion we managed to get our baggage and ourselves on board in time, and started from Esquimalt for San Francisco. Dr. Hector and I arrived at the latter place on 20th March 1860, and found it impossible to get room on board the steamer about to start for Panama and Aspinwall, being obliged therefore to wait for a fortnight, we employed our time in the interior of California visiting the gold mines of Grass Valley and Nevada, and also the giant trees in the Sierra Nevada range. Returning for the steamer on the 5th of April, we travelled together as far as Panama, when I proceeded, via the Havannah, New York, and Montreal, to England, leaving Dr. Hector to await for the British steamer via Southampton, and by which he anticipated my arrival in England.

The territory which has now been examined and mapped by this expedition ranges from Lake Superior to the eastern shore of the lesser Okanagan Lake, and from the boundary line to the watershed of the Arctic Ocean. This large belt of the continent was explored in three seasons.

The first season was devoted to the examination of its south-eastern portion from Lake Superior to the elbow of the south branch of the Saskatchewan, and from the British boundary line or 49th parallel to Fort Carlton, in lat. $52^{\circ} 52'$ N., long. $106^{\circ} 18'$ W.

The second season was devoted to the examination of the territory between the two Saskatchewans, to the exploration of the Rocky Mountains, and to the discovery of the passes available for horses in the British territory.

The third season commenced with a long journey from our winter quarters at Edmonton in lat. $53^{\circ} 34'$ N., long. $113^{\circ} 20'$ W., through the Blackfoot country to the most western point in the neighbourhood of the boundary line, previously reached by the expedition from the eastward in 1857. A westward course was then resumed along the country between the South Saskatchewan and the British boundary line, thence once more across the Rocky Mountains. Finally, the connexion of a route practicable for horses was effected the whole way from Red River Settlement across the continent to the Gulf of Georgia, entirely within British dominions.

This large belt of country embraces districts, some of which are valuable for the purposes of the agriculturist, while others will for ever be comparatively useless.

The extent of surface drained by the Saskatchewan, and other tributaries to Lake Winnipeg, which we had an opportunity of examining, amounts in round numbers to 150,000 square miles. This region is bounded to the north by what is known as the "strong woods," or the southern limit of the great circum-arctic zone of forest, which occupies these latitudes in the northern hemisphere. This line, which is indicated in the map, sweeps to the north-west from the shore of Lake Winnipeg, and reaches its most northernly limit about $54^{\circ} 30'$ N., and long. 109° W., from where it again passes to south-west, meeting the Rocky Mountains in lat. 51° N., long. 115° W. Between this line of the "strong woods" and the northern limit of the true prairie country there is a belt of land varying in width, which at one period must have been covered by an extension of the northern forests, but which has been gradually cleared by successive fires.

It is now a partially wooded country, abounding in lakes and rich natural pasturage, in some parts rivalling the finest park scenery of our own country. Throughout this region of country the climate seems to preserve the same character, although it passes through very different latitudes, its form being doubtless determined by the curves of the isothermal line. Its superficial extent embraces about 65,000 square miles, of which more than one-third may be considered as at once available for the purposes of the agriculturist. Its elevation increases from 700 to 4,000 feet as we approach the Rocky Mountains, consequently it is not equally adapted throughout to the cultivation of any one

crop, nevertheless at Fort Edmonton, which has an altitude of 3,000 feet, even wheat is sometimes cultivated with success.

The least valuable portion of the prairie country has an extent of about 80,000 square miles, and is that lying along the southern branch of the Saskatchewan, and southward from thence to the boundary line, while its northern limit is known in the Indian languages as "the edge of the woods," the original line of the woods before invaded by fire.

On the western side of the Rocky Mountains, in the country which we examined, there were but few spots at all fitted for the agriculturist, and these form isolated patches in valleys separated by mountain ranges.

As the next result of our explorations, I shall briefly mention the different passes through the Rocky Mountains which we explored, alluding to the chief advantages and disadvantages of each.

The Kananaskis Pass and the British Kootanie Pass were examined by myself: Of these I consider the Kananaskis Pass the preferable one, both on account of its direct course through the mountains and its easier ascent.

The ascent to the height of land from the east is through a wide gently sloping valley, and the immediate watershed is formed by a narrow ridge, which, if pierced by a short tunnel, would reduce the summit level to about 4,600 feet above the sea. The descent to the west, into which Kananaskis Pass opens, is comparatively easy.

The British Kootanie Pass also opens out into the Kootanie River valley, but the altitude here to be overcome is much greater, amounting to 6,000 feet. There are likewise two ridges to be passed, which fact would form a very strong objection to this pass.

The Vermillion Pass, which was traversed by Dr. Hector, presents on a whole the greatest natural facilities for crossing the mountains without the aid of engineering work, as the rise to the height of land is gradual from both sides, a feature which seems to be peculiar to this pass. It would thus be impossible to diminish its summit level (which is less than 5,000 feet), as is proposed in the case of Kananaskis Pass, but on the other hand it would be the most suitable for the construction of an *easy waggon road*.

This, like the other two passes I have mentioned, also strikes the Kootanie River close to its source; but last summer Dr. Hector crossed the mountains by another pass from the head of the north branch of the Saskatchewan, directly to the Columbia River, in the vicinity of the boat encampment.

Leaving this latter pass out of consideration for the present, as all of the others open to the Kootanie River, it becomes necessary to consider the course by which it may be practicable to the coast of the Pacific without crossing to the south or American side of the boundary line. It was with great difficulty for this purpose even a partial examination of the country could be effected, owing to the rugged valleys which intersect it in a direction parallel to the mountains, and which, though not formidable themselves, are covered with such dense forest as to present obstacles to the traveller. Notwithstanding these difficulties, Mr. Sullivan succeeded in making his way on the north side of the boundary line, and at the same time following a system of transverse valleys, which might allow of the construction of a road without much trouble from the mouth of Kananaskis Pass to the Columbia, above Fort Colvile. From this point westward I myself ascertained that it would be possible to reach the valley of the Okanagan, by which I believe the Americans have already commenced to connect the waggon road of the Columbia with the upper country of the Fraser River. While pointing out the circumstances that seem to favour the possibility of carrying a road through British territory, from the Saskatchewan to the Pacific, I wish to refrain from expressing any opinion as to the expediency of undertaking at the present time a work which would involve a vast amount of labour and a corresponding heavy expenditure. For how long a time in the year such a road would remain open, is a question as yet unanswered, and which has a most important bearing on the subject. In addition, the difficulty of direct communication between Canada and the Saskatchewan country, as compared with the comparatively easy route through the United States by St. Paul's, renders it very unlikely that the great work of constructing a road across the continent can be solely the result of British enterprise.

Not the least important results of the expedition are the meteorological observations which have been carefully conducted during the whole period of the explorations, both in the winters and summers, whether we were stationary or travelling. I lay stress upon this fact, as it affords materials for ascertaining the exact nature of the climate and means for a correct comparison between its nature and that of Canada.

The hourly magnetic observations were conducted by Lieutenant Blakiston, R.A., assisted by the other members of the expedition, during the winter of 1857-8. These were not, however, all carried on during the winter 1858-9, owing to the return of Lieutenant Blakiston with the instruments, the magnetic declinations however were attended to.

The astronomical observations and computations were placed in the hands of Mr. Sullivan, and the geographical position of the several salient points of the map are determined principally by his lunars, the rates of chronometers being, of course, too unsteady to be depended on while travelling through so rough a country.

The large botanical collection of our botanist, M. Bourgeau, has already been sent to Kew Gardens, where the specimens have been carefully arranged by himself under the inspection of Dr. Hooker, who highly values them.

Dr. Hector's specimens of fossils, &c. were from time to time transmitted to Sir Roderick Murchison at the Jermyn Street Museum, but from the nature of the subject much time must elapse before his results can be laid before Her Majesty's Government.

In conclusion, I have great pleasure in bearing testimony to the unceasing zeal and energy of my companions, whose valuable assistance has been instrumental in bringing the expedition to so successful a termination.

I have, &c.

(Signed) JOHN PALLISER, Capt.,
Commanding North British American Exploring Expedition.

Her Majesty's Principal Secretary of State.

Enclosure 1 in No. 4.

Encl. 1. in
No. 4.

RECORD OF ASTRONOMICAL OBSERVATIONS during 1859.

Date.	Place.	Obser. Mer. Alt. Cor. for I. E.	Longitude by Account or Observation.	Latitude.
1859.		○	W.	N.
March 25	α Rocky Mt. Ho.	39 13 0	115 4	52 22 6
June 12	Hand Hills	61 21 35	111 30	51 33 13
„ 30	„ Lake*	61 34 32	111 27	51 21 41
July 7	Prairie near Red Deer River	61 6 40	111 12	51 14 19
„ 13	Elekesohp Creek	60 42 25	110 58	50 53 7
„ 15	Red Deer River	60 23 30	110 36	50 53 52
„ 17	Prairie	60 4 10	110 20	50 53 47
„ 19	16 miles to north of Bow River	59 56 30	109 54	50 40 22
„ 20	8-miles to north of Bow River	59 51 20	-	50 34 25
„ 21	Crossing Place, Bow River	59 46 11	110 28	50 27 42
„ 26	α Cypree's Mount, west flank	59 24 30	110 42	49 47 27
„ 27	„ „ „	59 12 55	110 36	49 45 38
„	α „ „ „	59 0 5	110 35	49 44 38
„ 29	noll, south of Cypree's Mounts	58 59 22	110 35	49 31 22
„ 30	Milk River	59 19 0	111 0	48 58 40
August 1	Cypree's Mounts	58 8 10	110 35	49 38 32

* Longitude very accurately determined here by means of a set of lunar distances.

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Record of Astronomical Observations during 1859—continued.

Date.	Place.	Obser. Mer. Alt. Cor. for I. E.	Longitude by Account or Observation.	Latitude.
1859.		○	W.	N.
August 1	Cypree's Mounts, west flank, Small stream.	57 24 45	111 0	49 35 21
„ 8	Belly River	56 6 50	112 52	49 47 4
„ 9	One mile south-west of tributary to Belly River.	55 52 5	- -	49 44 35
„ 10	Hills near tributary to Belly River	55 42 30	113 50	49 36 44
„ 18	*Kootanie Valley	53 51 10	115 12	49 0 3
„ 22	Kootanie River	53 0 17	115 0	48 32 0
„ 24	Kootanie River (R. B.)	52 27 5	115 10	48 23 51
„ 26	" "	51 43 0	115 30	48 26 29
„ 27	" "	51 9 17	115 45	48 38 33
„ 28	" " (Paddler's Lake)	50 45 40	116 0	48 41 41
„ 30	Kootanie River	49 47 22	- -	48 57 20
„ 31	20 miles from Paddler's Ware.	49 7 32	116 36	49 15 33
September 1	Large Lake, north shore, 5 miles east of west extremity.	48 24 57	- -	49 36 25
„ 2	Portage, west extremity of second lake	48 9 40	- -	49 29 50
„ 3	Kootanie River	47 58 37	- -	49 18 48
„ 4	Mouth of Pendoreille's River	47 54 47	118 0	49 0 31
„ 8	Fort Colvile	46 48 2	118 12	48 37 48
„ 17	Fort Shepherd	42 58 17	118 0	49 1 7
„ 18	Observation Mount	42 35 47	- -	49 0 15
„ 22	West of Fort Shepherd	40 59 43	- -	49 3 10
„ 23	" "	40 36 33	- -	49 2 44
„ 24	" "	40 10 43	- -	49 5 19

N.B. ○ indicates lunar distances observed.

April 23rd, 1859, at 6 h. 20 m. A.M. Mean Time, at Place nearly (Rocky Mount Ho.) in Latitude 52° 22' 6" North, the following Mean of Lunar Distances were observed:

T. Mean Time at Place, 22 d. 18 h. 21 m. 42 s. observed distance ○ 107° 8' 5" I. E. + 4 40

Computed longitude 115° 10' 45" W.

March 29th, 1859, at Rocky Mount Ho. the following variation of Compass was determined:

Also on the same date 26° 30' E. 26° 10' E. 40'

Variation of compass, Mean 26° 20' E.

(Signed) J. W. SULLIVAN,
Secretary.

* Longitude obtained at this point by a series of lunar distances, the mean of which is here tabulated.

Enclosure 2 in No. 4.

Sir,

London, July 8, 1860.

Encl. 2 in
No. 4.

BEFORE entering on an account of my explorations in the Rocky Mountains last summer, it is necessary that I should briefly notice four different journeys I made while the expedition was in winter quarters at Fort Edmonton, from October 1858 to May 1859. The first was before the setting in of the snow, when I made a trip of ten days along the Saskatchewan to the Snake Portage, for the purpose of ascertaining the nature of the district included by the great bend of this river and north of my track of the previous winter from Fort Pitt to Edmonton.

Again in the following spring circumstances obliged me to travel to Fort Pitt, on the crust snow, in the end of March and to return in April, immediately on the opening of spring, giving me an opportunity of observing this very interesting district at the most unfavourable season, and thus forming a more accurate estimate of its capabilities.

In the months of November and December I examined the country in the neighbourhood of Red Deer River, and along the base of the Rocky Mountains, from thence to the old Bow Fort, thus connecting my work of the preceding winter with that of the main party of the expedition during the intervening summer. The fourth trip I have to notice was in January, February, and a part of March, when, by passing to the north from Edmonton, I struck the Athabasca, the most southernly branch of the Mackenzie River at the site of Fort Assineboine, and following it up, entered the mountains at Jasper's House, as shall be described.

The three first-mentioned trips embrace country of much the same character, partially wooded, but the timber being of the usual inferior quality, common to the whole Saskatchewan. The most valuable feature of this belt of country, which also stretches from Touchwood Hills, Carlton, and Fort Pitt south of Fort Edmonton to the old Bow Fort at the Rocky Mountains, is the immense extent it affords of what I shall term winter pasturage.

This winter pasturage consists of tracts of country partially wooded with poplar and willow clumps and bearing a most luxuriant growth of vetches and nutritious grasses. The clumps of wood afford shelter to animals, while the scrubby brush keeps the snow in such a loose state that they find no difficulty in feeding; the large tracts of swampy country, when frozen, also form admirable feeding grounds; and it is only towards spring, in very severe winters, that cattle and horses cannot be left to feed in well-chosen localities throughout this region of country.

The proportion of arable land is also very considerable, and even late in autumn, which is the driest period of the year, and when the Saskatchewan for some weeks is fordable at Edmonton, there seems to be no want of water in the form of small streams and lakes. In spring I find the snow deeper in the neighbourhood of Fort Pitt than at Edmonton.

The winter of 1858-9 had been unusually severe, as far as the quantity of snow is concerned, and yet the average depth of snow, when undisturbed, as in the woods, was only about eight to twelve inches throughout a large district between Battle River and the North Saskatchewan at Edmonton. Towards the mountains, in a south-west direction, the quantity is still less; but during the early part of April, after the snow had nearly disappeared from Edmonton, a series of storms from the north visited the neighbourhood of Fort Pitt, so that in the middle of April there were from three to four feet of snow on the ground.

On the 12th January I started for Jasper House by way of Fort Assineboine and the Athabasca River, travelling of course with dogs. The track to Fort Assineboine passes through very densely timbered country to the north-west. On our second day we crossed a low height of land which separates the valley of the Saskatchewan from the waters which flow into the Arctic Ocean, and on the fourth reached the deserted fort of the Hudson's Bay Company.

The Athabasca is here a larger river than the North Saskatchewan at Edmonton, being about 300 yards, and flowing through a valley 250 feet deep, and from one to two miles wide.

For fourteen days I followed up this river on the ice, the great depth of the snow rendering our progress tedious, until within forty miles of the Rocky Mountains, where we arrived on 31st January.

Along the banks of this river were observed sections of the same coal-bearing strata that are exhibited on the Saskatchewan and the Red Deer River. There does not, however, seem to be the same quantity of coal.

Jasper House is in lat. $53^{\circ} 12'$ N., and stands in a wide valley within the second range of the mountains, which present a magnificent appearance here. The Roche à Miette rises just opposite the fort to about 5,400 feet above the river. Although it was the depth of winter, I was able to ascend to the height of 3,300 feet, or 7,300 feet above the sea, so singular is the climate along the eastern flank of the mountains, as thaws alternate with severe cold, preventing the snow from accumulating to any great depth. The winds are either from the north or the south, following the course of the Athabasca valley, which traverses the mountains in that direction. Although ice forms to a great thickness on the lakes, there are but few places where the river freezes within the mountains, as even a slight rapidity of current serves to free the ice during a partial thaw. The night we reached Jasper House we had to ford a rapid on the Athabasca breast deep, carrying our dog sledges on our shoulders, although the thermometer was 11° below zero. Finding a difficulty in obtaining food for my 3 men and 16 dogs at this little outpost, where their sole trust is on the hunting of the big horn sheep, I despatched them back to Edmonton by the route we came, remaining behind myself to make a further examination of the mountains.

Accompanied by Mr. Mowbray, the gentleman in charge of the place, and a half-breed Iroquois, I followed up the Athabasca for four or five days, taking horses with us as far as the point where the pass branches off to New Caledonia. We turned from where the Athabasca is but a small rivulet, closely hemmed by precipitous mountains. Want of food compelled us to return to Jasper House sooner than I would have wished.

Besides his kindness in accompanying me on this hard trip, I am also indebted to Mr. Mowberly for a valuable meteorological register, kept until the month of April, the observations being made with instruments I left at Jasper House for that purpose.

Having thus travelled in the Rocky Mountains at the most unfavourable period of an unusually severe winter, I am enabled to state, that whatever may be the amount of snow on the heights of land and their western flank, the valleys of the eastern ranges are actually less encumbered by snow than much of the prairie country.

On 19th February I started on my return to Edmonton, keeping a direct course through the woods for that place. I was accompanied by an Iroquois and a young half-breed lad; we carried our blankets and a small quantity of provisions on our backs, trusting to our killing rabbits or other game on the route. In this, however, we were disappointed, and we were forced to make three days' provisions last for 10 days, when the Iroquois killed a moose deer. On 5th March I reached Lake St. Ann's, and was hospitably entertained for a day by the Roman Catholic Missionaries at that place. A single night's run on a well-beaten track brought me to Edmonton, which is 50 miles from the Mission. The country passed over on this route is very irregular and densely wooded. Our course lay for a considerable distance along McLeod's River, a tributary of the Athabasca from the south. At the place where I crossed Pembina River, another tributary of the Athabasca, a bed of coal is exposed on its banks, which is about eight feet thick, and at one point has previously been on fire.

Having now given a brief sketch of the manner in which I employed my time during the winter, I will pass at once to the more especial object of this report, which is to describe the continuation of the exploration of the Rocky Mountains made during the succeeding summer.

After spending the early part of the summer with the main body of the expedition, in examining the country of the South Saskatchewan, as has already been detailed in your letter to Her Majesty's Government, dated September 1859, I left you at the Cypress Mountains on 3rd of August.

My party consisted of myself, four men, and my Stoney hunter, Nimrod, with 17 horses, eight of which were packed with my supplies, consisting of 240 lbs. of pemmican, 80 lbs. of flour, and 50 lbs. of sugar, along with a good supply of ammunition.

Keeping on the whole nearly to the north-west, and crossing Belly River where it joins the South Saskatchewan, in lat. $49^{\circ} 47' N.$, I reached the mountains at the old Bow Fort in ten days; besides meeting with a large band of Piegan Indians, who alone of all the tribes we have met showed a disposition to be more than impertinent, I spent a day in a camp of the mountain Assineboines, at the mouth of the Ispasquehon River. They had been obliged to leave the Thickwoods, owing to the scarcity of game, and were here killing a considerable quantity of elk and grisly bears. They are almost the best disposed Indians we have seen, and have been converted to Christianity through the influence of the Wesleyan missionaries. Some of them cultivate little plots of ground in the neighbourhood of the Wesleyan Missionary Station at Pigeon Lake, and also at the old Bow Fort. Their principal crops are turnips and potatoes, which they grow more as curiosities than practically supplying them with food.

From the site of the Bow Fort I followed up my track of the preceding summer, along the valley of Bow River, until I reached Castle Mount opposite the Vermillion Pass. Instead of crossing the watershed at this place, the hope of procuring game and adding to my stock of provisions, to which up to this time we had avoided having recourse, induced me to get to the N.W. as far as possible, keeping on the eastern slope of the mountains. I accordingly passed from the South to the North Saskatchewan by the Pipe Stone Pass, which is further to the east than the Little Fork Pass, by which I crossed this transverse divide in the preceding summer. This pass follows up a small tributary to Bow River from the north, and after having traversed a height of land at an altitude of about 7,000 feet, descends what I name the Siffleur River to the north branch of the Saskatchewan at the Kootanie point. Here I left my Indians, as they had by their hunting added 70 lbs. to my store of pemmican, and they were now likely, from the nature of the country I was about to traverse, to consume more than they would kill.

Altering my course to the S.W., I followed up the Saskatchewan to its source, and searched for a pass to the Columbia, of the existence of which I had been informed by the Indians.

Choosing the middle fork, I found it to rise in three branches, two of which are derived from immense glaciers, while the third is merely a small stream, issuing from a wide valley, the bottom of which is level and heavily wooded, and without any perceptible dividing ridge gives rise also to a branch of the Columbia flowing to the south.

This height of land is at an altitude of about 4,800 feet, and is in lat. $51^{\circ} 46' N.$, long. $117^{\circ} 30' W.$ In reaching it the ascent is imperceptible, but the valley of the great fork is closely hemmed by lofty precipices, its whole width of about half a mile being occupied by shingle deposits, showing that during the floods the channel of the river must be of great breadth, and the valley almost impassable.

One of the glaciers in which this river rises is of magnificent dimensions, even exceeding those of the one at the Glacier Lake which was examined the preceding summer. It must be at least nine miles long and three wide, and descends from the same "mer de glace" that envelopes the higher portions of the mountains for a considerable way to the north.

On 7th September I commenced the descent to the Columbia by Blaeberry River, a stream which rapidly increases in size, and descends about 2,000 feet through a very contracted valley in its course of about 35 miles. At various points we found traces of an old trail, which had evidently been out of use for many years, so that I have no doubt that this was the pass traversed by Howse in August 1810, as laid down in Mr. Arrowsmith's most recent map. It was at that time used as a portage-route from the east to the west side of the mountains, but was abandoned in favour of the more northerly route by the boat encampment.

The difficulties of descending this valley are very great, arising from the density of the forest growth, and the contraction of the valley at various points by rocky barriers. We were occupied nine days in descending a distance of 35 miles to its mouth, which is in lat. $51^{\circ} 26' N.$, long. about $117^{\circ} 50' W.$ Where it enters the valley of the Columbia River, Blaeberry River winds over immense flats of rounded shingle, testifying to the amount of material brought down from the mountains by the spring floods.

The Columbia at the point where we struck it is flowing to N.W. about 210 yards wide, and very sluggish and deep. Its valley is from three to four miles wide, and bounded by mountains, which to its right rise from 3,000 to 4,000 feet above its level, but on the left are about 1,000 feet lower.

A range of low hills occupy the centre of the valley, through which Blaeberry River passes in a deep rocky cañon before joining the main stream. It was now my wish to follow the Columbia River down to its great bend at the boat encampment, and thence following up the valley of Canoe River, endeavour to pass to the head waters of the Thompson's River, and so reach British Columbia. The valley of the river appears to be wide, and the mountains seem so open with rolling outline, that I did not anticipate any great difficulty in following such a course, if it had not been for the density of the forest. I spent some time in searching for any trace of a trail leading in the direction I desired to follow, but failed, as the Shooshewap Indians who inhabit this region of country travel solely by canoes, and keep the very few horses which they possess in the neighbourhood of the Upper Columbia Lakes.

I had only now provisions for 10 or 12 days, and many of my horses were much enfeebled by the long fast they had undergone in descending Blaeberry River, where there is little or nothing for them to eat, and having only one axe, I did not feel myself justified in attempting to follow a course by which, if I failed to penetrate, I should have to retrace my steps, probably with the loss of all my horses. We had also encountered several snow storms, warning us of the coming of winter; accordingly with great reluctance I turned to the south on the 18th of September and commenced following up the Columbia to its source, where I arrived on 3rd October.

This great valley through which the Columbia flows is one of the most singular features observed on the west slope of the Rocky Mountains. It is continued to the south from the Columbia Lakes by the valley through which the Kootanie River flows, and the famous wintering grounds in the Bitter Root Valley; to which the settlers flock from Colvile and other places, is, without doubt, the continuation of the same great natural feature. It is the belief that this valley is continued to the north, following the course of Canoe River, that makes me so sanguine that by this route a passage could be effected into the valleys of either Thompson or Fraser's River. However, we know so little of the head waters of those rivers, that I think it would be premature to offer an opinion on this point.

As far south as lat. $51^{\circ} 15' N.$ I found great difficulty in traversing this valley, from the nature of the woods with which it is clothed, consisting of a forest growth of northern character. After passing a bend which occurs in that latitude however, the forest assumes almost suddenly a Californian aspect, free from underwood, and stretches of open prairie clothed with bunch grass, the prevailing tree being the *pinus ponderosa*; where farther down the Columbia and to the north spruce firs predominate.

The Columbia River continues to be of large size to its source, as from the small inclination of the valley through which it flows, it preserves more the character of a sluggish canal than of a mountain stream. It winds through its valley bounded by a natural level, and including large swampy lakes in its bends.

From about the 51st parallel southward, however, the river becomes hemmed in by high banks, formed of beds of sand and shingle, which fill the valley, forming terraces of different levels, a phenomenon common to all the valleys further to the south which are contiguous to the Rocky Mount axis.

A narrow belt of open timbered land, only slightly elevated above the upper Columbia Lake, separates the source of the Columbia from the Kootanie River, a swift stream of large size flowing to the south. Before reaching this point the Kootanie River breaks through a rocky cañon, as was observed by Captain Palliser in his exploration of the preceding year, and it is at this point that it enters the great longitudinal valley, through which it flows to the south, forming the camping grounds of the Kootanie Indians.

Following down this river, which flows to the E.S.E., I reached the Kootanie Post on 7th October. From this place I followed the Hudson's Bay Company's trail along the Kootanie River, which dips as far south as $48^{\circ} 25' N.$, before it bends again to the north to meet the Columbia. Before reaching the Paddlers' Lake, where we left this river, we were obliged to swim it twice, a very severe trial to the horses so late in the season. From the Kootanie River we crossed to the Kullespelm Lake, and thence followed down Clark's Fork for about 20 miles. Here I happened to meet a Colvile half-breed, who told me that the snow was lying so deep on the Kullespelm mountains that we should find a difficulty in crossing them. Accordingly I travelled to the south until I came to the Spokane River, by following down which I came on the Columbian wagon road, about 80 miles south of Colvile. I arrived at this place on the 26th October, and joined you as you were preparing to start for Vancouver.

You have already informed Her Majesty's Government of my movements from that time until my arrival in Vancouver's Island on January 16th, 1860.

In the end of January I started for Nanaimo, travelling in a canoe with four Indians, and accompanied by Mr. Nind, of the local Colonial Office.

Nanaimo is situated about 70 miles up the coast, north-west of Victoria. It is from this place that the coal is procured which is already rendering Vancouver's Island of considerable mercantile importance in the San Francisco market. I had only a few days to spend in the examination of this very interesting district, but I saw enough to convince me of the value and considerable extent of this

PAPERS RELATIVE TO THE

coal deposit. This coal, which, however, is more properly speaking a lignite, is about 10 per cent. less valuable than the true coal of the carboniferous epoch. It is worked at Nanaimo by the Hudson's Bay Company, the miners being principally Staffordshire men, but the under hands chiefly Indians. The coal is worked from two seams, the lowermost of which is six feet thick, while the upper is from $3\frac{1}{2}$ to 4 feet. It is associated with grits and shales, and the whole group is probably of cretaceous age. The fossils which I have collected have not yet arrived in England, but they will be sufficient to determine this point with great exactitude. Mr. Nichol, the gentleman in charge, with the approval of Mr. Dallas, on behalf of the Hudson's Bay Company, afforded me every facility in the examination of the mines and the surrounding country, allowing me to have access to the different maps and documents connected with the mines under his charge. In the course of another trip from Victoria up Fraser's River, I learned some further details concerning this interesting group of coal-bearing strata of the Pacific coast, and which information, together with observations made in California, will be combined in the general report of the geology of the expedition to be submitted through you to Her Majesty's Government as soon as it is prepared.

I have, &c.

Captain Palliser,
Exploring Expedition.

(Signed) JAMES HECTOR, M.D., Edin.

ASTRONOMICAL OBSERVATIONS, 1858-9.—Dr. HECTOR.
Longitude, approximate. Latitude, diurnal only.

— Date.	Place.	Longitude.		Latitude.	
		W.	N.	W.	N.
1858.					
November 29	North side of Battle River	113 35	52 46 26		
December 1	Red-Deer River	113 40	52 18 13		
” 2	opposite Antler	113 50	52 12 36		
” 4	above Forks	114 30	52 1 26		
” 6		115 0	51 50 28		
” 9	Little Red Deer River	114 53	51 29 28		
” 10	Source of Little Red Deer River	115 3	51 21 40		
” 11	Dead Man's River	115 16	51 14 3		
” 15	Indian Camp Edge Co.	114 36	51 25 24		
1859.					
January 15	Thickwoods, between Pembina River and Paddle River	114 18	54 12 1		
” 17	Fort Assineboine	114 48	54 31 4		
” 23	Athabasca River	115 40	54 19 36		
” 25		116 49	54 12 24		
” 29	Below Dead Man's Rapid	117 18	53 50 51		
February 2	Jasper House	118 10	53 12 21		
” 8		118 10	53 12 5		
” 12	Maligne River	118 12	52 55 50		
” 13	Forks of Athabasca and Whirlpool River, trail to Boat Encampment	118 6	52 46 54		
August 8	South of Bow River	112 46	50 13 5		
” 9	Small Lake	113 6	50 23 39		
” 12	Mouth, Ispasquehon River	113 58	50 43 8		
” 16	South of Bow River	115 7	51 8 20		
” 23	Ten miles above Vermillion	116 16	51 19 0		
” 24	Opposite Observation Point	116 20	51 22 29		
” 26	Height of land, Pipe River	116 24	51 38 1		
” 30	R. bank of North Branch	116 50	51 58 3		
September 6	Great Glacier	117 30	51 46 33		
” 8	Blueberry River	117 25	51 40 49		
” 10	Right side valley, Blueberry River	117 30	51 36 39		
” 11	Blueberry River	117 35	51 34 3		
” 15		117 35	51 30 3		
” 17	Mouth, Blueberry River	117 50	51 25 50		
” 22	Columbia River	117 30	51 14 49		
” 23		117 20	51 9 5		
” 25		117 0	51 3 55		
” 30		116 40	50 47 3		
October 1	Lower Columbia Lake	116 26	50 29 33		
” 2	Source of Columbia	116 16	50 7 41		
” 3	Kootanie River	115 50	49 50 24		
” 5		115 35	49 36 18		
” 6		115 20	49 23 42		
” 8	Kootanie Post	115 10	48 54 48		
” 10	Kootanie River	115 5	48 40 28		
” 12	Second transverse valley	115 20	48 30 34		
” 13	Kootanie River, third transverse valley	115 30	48 25 23		

The longitudes given are those used in calculating the latitudes merely.—J. H.

JAMES HECTOR, M.D., Edin.



No. 5.

No. 5.

EXTRACT of a LETTER from Captain BLAKISTON, R.A., to C. FORTESCUE, Esq., M.P.

Sir,

Woolwich October 24, 1859.

In accordance with the directions of his Grace the Duke of Newcastle, contained in your letter dated Downing Street, 22d July 1859, I have the honour herewith to enclose a report, drawn up from information collected whilst attached to Captain Palliser's expedition as Magnetic Observer, and also, after separating from that expedition, in carrying out my original instructions.

I have, &c.

C. Fortescue, Esq., M.P.
&c. &c.(Signed) THOMAS BLAKISTON,
Captain, Royal Artillery.

REPORT.

Enclosure 1 in No. 5.

Encl. 1 in
No. 5.

INTRODUCTION.

British North America.—The prevailing ignorance in the United Kingdom of North America generally, but more especially of the British possessions on that continent, is such, that all the different provinces and territories are usually included in the term "Canada." Now, on looking at a map it will be seen that Canada is but a comparatively small portion of British North America, which extensive region, stretching from the Atlantic to the Pacific, and touching the United States in the great lakes and forty-ninth parallel, is limited to the north only by the Frozen Ocean, and rivals in size the remainder of this northern continent. Included in this are several thriving provinces, all under regular governments, and more or less peopled, but there is still the greater portion remaining as "Indian territory."

The Interior.—This, then, which until lately has excited little attention, except to those interested in the fur trade or Arctic exploration, is the country to which this report specially refers, and for want of a name must for the present be called "the Interior." And when we take into consideration that the extent in latitude of this tract is as great as from the almost tropical Gulf of Mexico to the most northern confines of the American Union, where the winters are nearly Arctic, we must expect to find it likewise varying very greatly in respect to climate, soil, and natural productions. Hence the greater part of the apparently contradictory evidence produced before the Select Committee of the House of Commons on the Hudson's Bay question in 1857 is to be attributed to the fact that the country over which that Company had control is of so great an extent, that a statement concerning the natural productions, fitness for agriculture, or anything which climate or physical nature would influence, can only be taken as referring to that particular part and not to the whole country. For example: a statement that good wheat grows in Rupert's Land does not prove that this grain can be produced over the whole country, of which the waters find their way into Hudson's Bay; nor can the fact that domestic cattle thrive in the Hudson's Bay Company's territories induce us to believe that stock farming (notwithstanding that we have evidence that on the banks of Back's Great Fish River there is some of "the finest grazing country in the world") would be a profitable undertaking on the shores of the Arctic Ocean, so that in the following "Report on the Interior of British North America," it has been my endeavour to bring each part forward in its true light as far as possible from reliable information and my own observations. I will therefore enumerate the different sources from which a knowledge of the interior has been gained.

Sources of Information.—During two centuries the fur trade has been gradually extending itself into the interior from three principal points—Hudson's Bay, Canada, and the Pacific; and so lucrative has the trade been, and such competition was there for some years between rival Companies, that the country has been traversed in almost every direction, and the routes taken being usually water (in most countries the primitive means of communication), the mapping of it in a geographical point of view has been generally very thoroughly carried out. Since the times of Hearne and Mackenzie, the Companies engaged in the fur trade have at different times employed men of considerable qualifications as astronomical surveyors, among whom may be mentioned the late Mr. David Thompson, Fidler, and Taylor, besides which the Hudson's Bay Company has itself fitted out Arctic expeditions, which have been ably carried out by Dease and Simpson, Dr. Rae, Messrs. Anderson and Stewart; and, moreover, Howse, known as the author of the Cree Grammar, made considerable explorations in the

Rocky Mountains in 1809-10-11, while in that service. Other travellers have passed through the country entirely by the means provided by the fur trade, among whom may be mentioned Sir George Simpson, Governor of the territories of the Hudson's Bay Company, Colonel Lefroy, Royal Artillery, David Douglas, and Mr. Drummond, both botanists, Captain Warre, and Mr. Paul Kane, whose interesting work, "The Wanderings of an Artist," has served to throw much light on the mode of life in the interior. Again, Arctic America and the regions of Lakes Superior, Winnipeg, and the Lower Saskatchewan have been surveyed by the several Government expeditions under Franklin, Back, and Richardson; besides which the International Commissioners ran the line of boundary in 1825 along the old canoe route as far as the Lake of the Woods.

Lake Explorations.—All this had been done, and several sportsmen and others had penetrated into the country of the Saskatchewan previous to 1857, when, at the recommendation of the Royal Geographical Society, an expedition was decided upon by Her Majesty's Government for the purpose of exploring the country between Lake Superior and the Rocky Mountains, together with the passes to the west side. This expedition, under the direction of Captain Palliser, left England in the spring of 1857, and the several reports of its progress, up to the winter of 1858 and 1859, will be found in the Parliamentary papers dated June 1859.

During the same season (1857), the Canadian Government having granted a sum of money for the purpose, an expedition was despatched from Canada for the purpose of surveying the canoe route between Lake Superior and Red River Settlement, with a staff of scientific gentlemen and their assistants, the whole under the superintendence of Mr. Gladman. The work, I believe, was accomplished satisfactorily, the results of which, together with explorations of Manitoba and Winipegosis Lakes, the Assiniboine River, part of the south branch and Lower Saskatchewan, as well as a careful survey of the settlement on Red River, were carried out by Messrs. Dawson and Hind during that and the following year. An account of these expeditions is to be found in another blue book, ("Explorations of the Country between Lake Superior and Red River Settlement,") also dated June 1859. Moreover, during the summer of 1857, a company of Royal Canadian Rifles proceeded from Montreal by ship to Hudson's Bay, and thence by the usual inland navigation to Red River Settlement, and reports having been called for from each officer of that detachment, the Commander of the Forces in British North America is doubtless in possession of some valuable information concerning that route.

CAPTAIN BLAKISTON'S PROCEEDINGS.

This being the first opportunity I have had of making any report direct to Her Majesty's Government, I shall now give as brief a statement of my proceedings as is consistent with clearness, omitting all observations of places or things the results of which have been embodied in the following report, and equally those matters of personal interest or slight importance which would only be introduced to enliven the dull monotony of a narrative.

Appointment.—Having been attached at the recommendation of the Royal Society to the exploring expedition under Captain Palliser for the purpose of prosecuting the required magnetic researches and assisting in the geographical objects of the expedition, I received instructions, drawn up by a Committee of that Society and sanctioned by the Colonial Department, concerning the magnetic desiderata which it might be in my power to supply. On the 21st of June 1857, I sailed out of the Thames on board the Hudson's Bay Company's ship "Prince of Wales," and after a seven weeks' voyage, the latter part of which, namely in Hudson's Straits and Bay, was mostly through ice, we reached York Factory, the seaport of Rupert's Land, at the mouth of Hayes River.

On landing I was engaged every day for upwards of a week in magnetic observations, the results of which have been discussed by Major-General Sabine, Royal Artillery (see "Remarks on the Magnetic Observations transmitted from York Fort on Hudson's Bay in August 1857."—Proceedings of Royal Society, 7th of January 1858). The Hudson's Bay Company fort containing the only dwellings at this desolate place, I, in common with some missionaries and other passengers, shared the hospitality so readily afforded, and it is but justice to say that while living at any of this Company's establishments no charge was ever made, and the gentlemen of the service seemed anxious to rival one another in good offices towards a stranger.

Start for the Interior.—Having been supplied with the necessary equipments and provisions, on the 31st August I left York Factory, having a passage provided in one of a brigade of six boats which was proceeding to the interior. An account of this voyage (Appendix I.) having appeared in the Parliamentary papers on Captain Palliser's expedition, I need say no more than that after travelling 400 miles, in which distance 35 portages were made and one house only seen, on the 20th September we arrived at Norway House, a post of the Hudson's Bay Company, situated near the north end of Lake Winnipeg. Here, the brigade with which I was travelling being bound for Red River, my traps were turned over to another boat, which being manned by "green hands," was to proceed up the Saskatchewan as the "fall boat" in charge of an experienced steersman. I remained on shore for two nights, and the day intervening being taken up in magnetic determinations from sunrise to sunset, I was unable to visit the Indian settlement of Rossville, under the auspices of the Wesleyan Missionary Society, situated on Play Green Lake at a short distance.

Lake Winnipeg.—Starting with our single boat on the 22d, we camped a few miles short of the

entrance to Lake Winnipeg. The following day, getting a fair wind, we ran across the greater part of the north end of the lake, but were forced to put ashore at the "Three Islands" on account of the heaviness of the sea. We were, moreover, disturbed during the night by the rising of the water, caused, no doubt, by the strong southerly wind heaping it up to this end of the lake, which obliged the men to divest the boat of her cargo and haul her up in the dark, a feat accomplished rather roughly. Luckily none of my magnetic instruments, which before leaving England I had taken particular care to secure in the boxes by strips of india-rubber, suffered any damage; but the breakage of two mountain barometers, which could only be carried loose in the stern sheets, I attribute to this shaking. Managing to get under weigh about noon the day following, we crossed the remainder of the lake, and camped near the foot of the "Grand Rapid," just inside the mouth of the Saskatchewan.

Grand Rapid.—By the evening of the next day we had succeeded in getting boat and cargo to the upper end of the Rapid, which was accomplished in the usual way by hauling the boat by a line up the lower part to the "carrying place," thence transporting the "pieces" (cargo) over the mile portage and towing the boat by a rope up the Rapid under the cliffs along the south side.

Saskatchewan River.—Some rapids which are shoal at this season of the year occur at either end of Cross Lake; after which Cedar Lake is reached. From this we continued up the Saskatchewan, the country on either side of which is so little elevated above the river that it is possible to pass in almost in any direction in canoe.

Having passed "the Pas" Mission we arrived at Cumberland House, situated on Pine Island Lake, on the 4th of October, where, after enjoying a Sunday of the most lovely "Indian summer" weather, I was comfortably put up for the night, and we proceeded on our upward voyage the following day. The country becoming gradually of greater elevation and the river banks consequently higher, we arrived at "Fort à la Corne," 15 miles below "the Forks," on the 15th October, where finding another boat on the point of starting for up river, we made our way in company until the 23d of October, when we reached Fort Carlton, the winter quarters of the expedition. Ice was already forming along the shore, and it being thought that the boat would not reach the next fort above before the closing of the river, the men with whom I had travelled, mostly Norwegians, who were bound for the upper posts, were despatched overland. I was received by Mr. Hardisty, the gentleman in charge, and was installed into comfortable quarters, after a fifty-three days' boat voyage.

Arrival at Winter Quarters.—Here I found M. Bourgeau, the amiable and hard working botanist of the expedition, the other gentleman being off on excursions into the country. Captain Palliser had left sometime previous on his return to Red River, en route for the United States; and I was somewhat surprised at finding neither letter nor even message from him. My position on the expedition was not defined; I had work to be done in which assistance was required, and yet no authority to procure it.

I need hardly say that my position was by no means enviable, but I at once decided to carry out my special instructions and interfere in no matters concerning the expedition. This course I followed without deviation, and although in doing so I may have caused myself to be looked upon by some as an unwelcome addition to the expedition, yet I have the satisfaction of knowing that in making all private feeling succumb to the requirements of duty, I have carried out that which possibly others more yielding might have failed to accomplish.

Hourly Observations.—On the arrival of Dr. Hector and Mr. Sullivan I showed them and M. Bourgeau my instructions, in which, referring to hourly observations made on the Arctic coast in 1853 and 1854, this clause occurs: "It is hoped that, with the aid of some of his colleagues on the "expedition, Lieutenant Blakiston may be able to accomplish similar observations at the winter "station of at least three or four months' continuance." They immediately expressed their desire to aid in the work; I therefore applied to the gentleman in charge, and the construction of a rough observatory was commenced without delay.

Until the completion of this the greater part of my time was occupied in making the out-door observations, to which the approaching cold weather would put a stop; when, having fixed the instruments, gone through the necessary adjustments, and everything being ready, on the 12th November was commenced a series of hourly observations of the changes of the magnetic declination, the temperature of the air, and state of the weather, together with six-hourly readings of the barometer and hygrometer; besides the daily self-registering thermometers; M. Bourgeau at the same time taking the temperature of the ground at the depths of two and three feet daily, which he conducted with uninterrupted regularity.

The hourly series was carried on by a system of watches, each relief during the day being six and at night four hours, the observations being made at the exact minute of time according to a chronometer, which I kept regulated by astronomical observations. For the first month the work was by no means pressing, as four observers took their regular turns; but Dr. Hector leaving at this time, the duty was carried on for the next two months by three of us. Unluckily it was a winter of rather "hard times" at Carlton, and in February the fort becoming much reduced in provisions, nearly all the families were sent off to the plains to shift for themselves near the buffalo, and at the same time Mr. Sullivan, accompanied by the expedition cook, left for another post of the Hudson's Bay Company. This reduced to two, I consulted with M. Bourgeau, who immediately expressed his willingness to devote himself to the work as long as I thought proper for the good of science. For

PAPERS RELATIVE TO THE

two months, consequently, were the observations carried on by M. Bourgeau and myself, the instruments being registered every hour, day and night, and it was not until five months were completed, and the spring botanical collecting commenced, that I brought the series to a close.

Credit due to the Observers.—Considering that the use of the magnetic instrument employed was entirely new to the observers, I cannot but say that the greater part of the observations were made in a manner most creditable to themselves, and on the completion I addressed a letter to Captain Palliser, which was delivered to him on his arrival from the United States, but which not appearing in the Parliamentary papers, I here insert a copy.

"Sir,

"A series of hourly magnetic and meteorological observations continued uninterruptedly "night and day for five months, having been this day brought to successful termination, I have the honour to express my thanks for the co-operation of the members of the expedition under your command, who, on my arrival here in your absence, voluntarily undertook the work which I had no power to command. I would more particularly mention, for the information of Her Majesty's Government, the untiring zeal manifested by M. Bourgeau during the whole period, but especially "for the last two months, when he devoted himself to the somewhat arduous undertaking of sharing "the watches with only myself, so as to carry on the series without omitting any of the hours of the "day or night.

"Fort Carlton, Saskatchewan River, April 16, 1858.

"I have, &c.
(Signed) "THOMAS BLAKISTON,
"Lieutenant, Royal Artillery.

"John Palliser, Esq.,
"Commanding Exploring Expedition, &c."

I also wrote to Major-General Sabine, especially mentioning M. Bourgeau, to whom science is so greatly indebted, that had it not been for him this important series of observations could never have been accomplished; and I do hope, that taking into consideration the most complete botanical collection which has been made by that gentleman, Her Majesty's Government will be induced to add a bonus to the scanty allowance which he has received for each season's work.

Magnetic Observations.—The five months' hourly-magnetic observations above mentioned have been discussed by General Sabine in the volume concerning magnetic observations and surveys now in the press; but having at the same time made determinations of the magnetic elements at regular intervals during the course of the winter and spring, I should here observe that the results of all my magnetic observations, from Hudson's Bay to the Rocky Mountains, will appear in a comple account which I have been requested to draw up for the Royal Society, after the arrival of the instruments and their verification at the original base station "Kew."

Meteorological Observations.—I have before said the meteorological observations were included in the hourly series; but that terminating on 16th April, they were afterwards kept up three times a day until the expedition left its winter quarters in the middle of June; I, however, left a thermometer, which was registered by the gentleman in charge and those under him, during summer and autumn while I was absent; and on my leaving Carlton for good in December 1858, I still left it there, and have now received another six months' observations. The climate, therefore, of this station is likely to be well determined.

Astronomical Observations.—Astronomical observations were made by Mr. Sullivan and myself during the winter and spring for the correct determination of the geographical position of Fort Carlton, and their agreements are as near as can be expected, the latitude being the same, namely, $52^{\circ} 52' 5''$ north, and the longitude, deduced from lunar distances,—

Sullivan - - - $106^{\circ} 15' 3''$ west (mean of three).
Blakiston - - - $106^{\circ} 23' 8''$ " " seven).

Proceedings, Summer of 1858.—I need say little concerning the proceedings of the expedition during the summer of 1858, which have been described by Captain Palliser (see Parliamentary papers), it is sufficient for me to mention that while carrying out his orders, I made magnetic determinations at required stations, and carefully mapped the country through which I passed, and having rejoined the expedition near "Cache Camp" to the south of the Red Deer River, we proceeded to the south-east over prairie until buffalo were found at what I called "Slaughter Camp." Here a council was held, and Captain Palliser decided on what part of the explorations of the mountains was to be undertaken by each individual, and which he has detailed in his report, but with the error that he has stated, "Lieutenant Blakiston to proceed through the mountains by the two known Kootanie "passes, returning by the southern one;" whereas the fact is, the information of the half-breed who was consulted on this part of the mounains was, in his own words "Il y en a plusieurs des places on "les Kootanies sont accoutumées de faire le travers." At the same he said that he had only crossed by one of these, which was that generally used, and among the natives known by the name of "the "Kootmay pass." This known pass, therefore, Captain Palliser desired me to survey, and determine whether it was wholly in British territory; if it proved not to be so, he left it to myself to endeavour or not, as I chose, to search for another north of it.

Proposition to explore rejected.—At this council, which was held on the 2d August, I proposed that two men should be left at the site of Bow Fort on Bow River (at which point the parties were to separate), for the purpose of constructing a canoe, in which, after returning from the mountains (having calculated the time required), I proposed to descend Bow River and the south branch to

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the Forks of the Saskatchewan, thereby getting a knowledge of the whole length of the river and the country through which it flows. This proposition seemed to be favourably entertained at the time, but on the following morning I was informed that it was an unknown river; I need only further say that it is still equally unknown.

Separation from Exploring Expedition.—I was, moreover, told (after having at last demanded to know my position in the expedition), that I was to consider myself under the order of another member; immediately after making which declaration, Captain Palliser rode off on an exploration to the southward, and I accompanied the remainder of the expedition to the "site of Bow Fort," where, after mature deliberation, I wrote a letter (see, Parliamentary Paper, June 1859) which I left for Captain Palliser, wherein I threw off his command; but in order that the objects of the expedition should not be frustrated, I proceeded with the exploration which I had previously undertaken, which will be found detailed in a "Report on the Exploration of the Kootonay and Boundary Passes of the Rocky Mountains in 1858." This, although in the possession of the Colonial Department, I have attached as an appendix (Appendix II) for the sake of reference. As to the statement of Captain Palliser with respect to the Kootonay Pass in his report (see Parliamentary Papers, June 1859) of which the words are "Lieutenant Blakiston's exploration may, perhaps, have a value hereafter as a corroboration of my own," I have only to say that unfortunately in his map or description I am unable to recognize, except in its general position, the "Kootonay Pass," which I had previously taken so much pains accurately to lay down; and the tone of that statement leaves me under the impression that it was, perhaps, made but half-intentionally in the haste of writing. It may possibly be some explanation of the course taken by Captain Palliser, that previous to my separation from him, on 11th August 1858, I had been altogether but fourteen days in his company since the expedition left England in May 1857; and before that we had met so few times that whatever Captain Palliser knows of me must be from report.

Return to England.—The appendix above referred to and a letter which reached the Colonial Office contain my proceedings till arriving at Carlton at the end of October 1858. Subsequently I travelled during the winter, walking in snow-shoes driving a train of dogs, a distance of 800 miles, arriving at Red River Settlement on the 1st of March 1859. Here I remained until I received Sir E. B. Lytton's reply to my offer to prosecute further exploration or magnetic survey, after which I took the earliest opportunity on the breaking up of the winter of proceeding by the overland route to Saint Paul on the upper Mississippi, distant 530 miles from Red River Settlement; after this my travelling was through civilized parts.

CONTENTS OF REPORT.

It is not without some degree of hesitation that I now offer this Report, which notwithstanding the labour bestowed upon it, must necessarily be very imperfect. It will, moreover, I feel sure fail to give that correct conception of the state of things that actually exists, which it has been my endeavour to pourtray; but such as it is, I have arranged as follows:—

Report.—Section A. Physical features.

- " Natural productions and climate.
- " B. Inhabitants, present state, missions, &c.
- " C. Development of resources.
- " D. Future government and colonization.

Appendix.—Appendix I. "Report on the route between Hudson's Bay and Lake Wimipeg."

- " II. "Report on the exploration of the Kootonay and Boundary Passes of the Rocky Mountains in 1858."

SECTION A.—I.

PHYSICAL FEATURES.

General Features, North America.—The continent of North America is divided into several great basins, determined by the general slopes of the surface and consequent direction of the flow of its waters, of which the British or northern portion comprises almost the whole of that drained to the north and north-east, as well as a part of the western or Pacific slope. Besides these water systems, the great features which influence the climate and the progress of civilization are, first, a continuous chain of mountains running through the whole length of the continent, dividing it laterally into two distinct portions,—the warm chaldron of the Gulf of Mexico to the south, with a counter-balancing reservoir of ice penetrating deeply into the northern part of the continent; and lastly, those extensive inland sheets of fresh water commonly called "The Great Lakes." In an extra-tropical continent thus formed, it would be natural to expect a very varied climate, and such being actually the case, we find consequently in a comparatively short distance great diversity in the habits and occupations of the inhabitants.

The Interior.—As this report purports to treat only of the interior of British North America, I shall confine myself to a general sketch of the physical features of that country, which, to speak generally, may be thus divided:—

1. The northern or Arctic basin. 2. Hudson's Bay. 3. The Central Plains. 4. The Rocky Mountains. 5. The Pacific slope; and if Canada were included it would be a sixth, the St. Lawrence basin. They are all so distinctly marked that their names at once almost define them. Again, looking at the country from a geological point of view, the first point that must strike the attention is that at an average distance of 100 or 150 geographical miles from the south and west shores of Hudson's Bay commences a district of primitive formation, and which, when defined on a map, appears as a great belt or band of from 150 to 200 miles in width, coming from the northern part of Canada east, skirting the upper Great Lakes, curving round to Lake Winnipeg, and thence taking a north-easterly direction, reaching the Arctic Sea in the region between the Coppermine and Back's Great Fish River. In this granite axis, as it should perhaps be called, but mostly on its western edge, lie the principal lakes of the interior, commencing with Winnipeg, whose eastern and western shores, approaching within two miles of one another, exhibit on the one hand secondary, and on the other primary rock. Deer Lake, Athabasca, Slave, and Great Bear Lakes carry on the connexion to the Arctic Sea, where Coronation Gulf occurs. It is a peculiarity of this belt that no rivers run uninterruptedly through it, and the water is so dammed up that the whole country is intersected with numberless lakes. It is almost needless to say that this tract is extremely rocky. The geological nature of the country intervening between this barrier and Hudson's Bay is favourable, but the influence of that icy sea on the climate is such that we must class the whole of that region as most inhospitable.

Central Plains.—Beyond this primary belt, and limited on the west by the chain of the Rocky Mountains, is an extensive region of secondary formation, through the northern part of which flows the Mackenzie, the greater part of the valley of which river, from its Arctic situation, being unfit for pasture and worthless for agricultural purposes, there only remains the country between Lake Winnipeg, the Rocky Mountains, and forty-ninth parallel, to which we can look as affording soil and climate adapted for settlement by a civilized community; and it is to this area, including also that portion between the western boundary of Canada and Lake Winnipeg, to which in this Report I would most particularly draw attention. It is this district, I may observe, which fills the gap between Canada and British Columbia, and may before long be required to complete the chain of dependencies of the British Crown, stretching from the Atlantic to the Pacific.

Many would divide the central plains which occupy the greater part of the country just mentioned, and are but the northward extension of the high plateau in the territory of the United States west of the Mississippi, between the Arctic basin and that of Hudson's Bay, because of the rivers which flow through them ultimately find their way to the north and north-east. I cannot, however, do this; but must consider the great central plains as a distinct district, having the general form of a triangle, of which the 49th parallel (international boundary), from the Rocky Mountains to the Lake of the Woods, forms the base, while the apex is to the north of Peace River, near latitude 60°. This is also in accordance with the views of Sir Alexander Mackenzie, the greatest North American traveller at the

Climatic Divisions.—“Climatic grounds” gives as its southern limit a line “from Churchill (Hudson's Bay) along the north border of Deer Lake to the north of the Lake of the Hills (Lake Athabasca) and Slave Lake, and along the north side of the latter to the Rocky Mountains, which terminate in the North Sea, latitude 70° north, and longitude 135° west, in the whole extent of which no trees are visible, except a few stunted ones scattered along its rivers, and with scarce anything of surface which can be called earth; yet this inhospitable region is inhabited by a people who are accustomed to the life it requires,” and which has been so distinctly confirmed by later travellers. In connexion with this subject is the “limit of perpetually frozen ground,” north of which the subsoil never thaws; its general direction is much the same as that of the “barren grounds,” but considerably to the southward, namely, from the southern extremity of Hudson's Bay, touching the north end of Lake Winnipeg, and thence taking a north-westerly direction. These climatic lines have been marked on the map No. 1.

Arctic Regions.—To despatch in a few words the north and north-eastern portion, properly called the Arctic Regions, we see that the greater part is included in the “barren grounds,” and besides the Mackenzie is drained by Back's Great Fish River and the Coppermine, both flowing into the Arctic Sea; the more southern and western part of the country is however wooded, as is, I believe, the whole length of that noble stream, the Mackenzie, except at its most northern parts. The climate is cold in the extreme, and a considerable portion of the country is within the Arctic Circle. The inhabitants are Esquimaux, Chipeweyans, and some Crees in the south. The trading establishments are kept up on deer, meat, and fish, with potatoes and barley, which are grown at some posts. The supplies and returns of the fur trade are annually transported in boats, but there not being time for those belonging to Mackenzie's River to go to and return from Lake Winnipeg, cargoes are exchanged at “Portage la Loche,” between the English and Athabasca rivers, in latitude 56° north, with a brigade sent from the dépôt.

Hudson's Bay.—Again, the region around Hudson's Bay is generally of much the same character as the wooded portion of the Arctic regions, but owing to the formation of the country, causing so many rocky obstructions in the rivers, the extent to which the country is in many parts submerged is almost incredible, except to one who has witnessed it. Few of the rivers, of which there are many, are navigable for anything larger than boats, and it is with the greatest difficulty that even these are got through many parts (see Appendix I.).

The timber is small and stunted, particularly in the vicinity of the bay.

Of course, James' Bay being the most southern, is the most salubrious portion of this great inland sea, but as I have no personal knowledge of that part, I take the information gained from persons who have lived there.

In this district, on the shore of Hudson's Bay at the mouth of Hayes and Nelson rivers, is York Factory, the great dépôt of the Hudson's Bay Company for the inland trade.

There is a road outside, which is, however, much exposed, but a safe anchorage exists inside the mouth of the former river for a limited number of vessels, not drawing more than 15 feet (the depth of water in the bar), and I have little doubt that a harbour for vessels of large size would be found in the mouth of Nelson River, which being the outlet of the Saskatchewan and other rivers of the interior, is of large size. There is also another post on the west side of the bay, but more to the north, at the mouth of English River. This is Fort Churchill, a place of importance in the early days of the fur trade.

The dépôt for the southern department, which a vessel of about 500 tons annually visits, is Moose Factory, at the southern extremity of James' Bay, of the country around which I am ignorant, but being directly north of and not far removed from the confines of Canada, matters little with regard to the interior.

Numerous trading posts are scattered throughout this thickly wooded region, but with no other object than the prosecution of the fur trade.

WINNIPEG.

Winnipeg.—In referring to this remaining district, I have as yet only spoken of it as the Central Plains, without reference to its rivers, lakes, or mountains.

This district contains about 380,000 square miles, or extending in latitude 7° , with a general width of 750 miles, is as large as France and Spain together, and is the portion of country which, unnamed at present, I have preferred to call after its principal lake "Winnipeg." The word is Cree Indian, and as with most of their names, is descriptive of the lake "Muddy water." This being the part of the interior likely to be of use for civilization, and being that with which I am most acquainted, I propose to treat of it somewhat in detail.

Between the valley of the Mississippi and the Rocky Mountains is a large extent of elevated and level country which is now generally called the "High Central Plains." These plains extending into British territory, constitute the country of which we have now to speak. Leaving the primary formation on the east shore of Lake Winnipeg, a secondary limestone is visible along the entire western shore, and on the Red River, and this must extend westward, but very little is seen of it owing to the mass of "drift" which covers the country as far as the mountains, which consequently is the geological nature of these plains, which extend without break from Lake Winnipeg and the Red River to the Rocky Mountains, being at their eastern extremity a little over 600, and rising by successive steps until at the base of the mountains they have an altitude of 4,000 feet above the sea.

Speaking generally, the nature of the soil of these plains is sandy, and almost the entire southern portion is prairie, trees only occurring in the river bottoms. But north of a line from the south end of Manitoba Lake, running towards the forks of the Saskatchewan, and following the north branch to longitude 111° west, and after this sweeping south-west to the Rocky Mountains, the country is generally partially and in parts thickly wooded, small aspen being the common tree, but in the more southern portion the oak and elm flourish, while the spruce and pine are only found in patches except towards the north. There is usually a good depth of soil in the wooded portions and on those prairies which have originally been forest land.

The extent of this kind of country northward I am unable exactly to define, but the region to the north of the Saskatchewan is not, as has been stated, altogether thick forests, for there are prairies on Peace River in latitude 56° north, so that we may presume that the partially wooded country, except at the base of the Rocky Mountains, has considerable range in a north-westerly direction.

The prairies are of two kinds, the "arable" and the "dry," the former having a good depth of black mould, while the soil of the latter is usually limited to two or three inches. The arable prairie in the United States is found to extend throughout the valley of the Mississippi, but west of that the dry arid prairie extends without interruption to the Rocky Mountains. On the British side of the line the same difference exists, the arable prairie being confined to the basin of Red River, while the dry prairie extends west to the mountains. But besides these two there is another kind of prairie, which, for sake of distinction, I call "Willow Prairie," it was probably originally wood land, which being by the continual prairie fires cleared of trees, there now remains a fine vegetable soil, on which vetches and plants of that kind flourish, besides the grass, while some willows are generally found, often very small, but after the absence of fire for some years, they grow to considerable size. Along the edge of the line of woods is usually a belt of this willow land of greater or less width, but often separating the true prairies from the woods by some miles.

Crossing this generally level district there are what are called "Coteaus," which, in my opinion, are the rises of the successive steps of the plains as they gain altitude, and in travelling westward, on mounting one of these coteaus, you do not again descend but continue at a higher level. They may have been coast lines of the sea at different periods of submersion, the effects of which are so clearly shown in the "river levels" which have been described in Appendix II.

Rocky Mountains.—The Rocky Mountains, forming the western boundary of the plains described, have a general direction N.N.W. and S.S.E., and are characterized by a great absence of prominent peaks, being in fact generally a number of parallel ridges with intervening valleys. They appear to reach their greatest height, 15,000 to 16,000 feet, about latitude 52° north, which also seems to be their broadest part north of 49°.

The line of watershed, as far as latitude 51° north, is near the eastern edge, but from thence north it seems to tend more to the westward, and at the several places where it has been crossed is nearly of the same altitude, viz., from 5,000 to 6,000 feet above the sea level. To the south of 51°, but particularly near the international boundary, the range is very narrow, not over 40 miles in width. It is remarkable that no primitive rock has been found in these mountains between 52° north and the boundary, while it exists in the cascade range of British Columbia, hence we may infer that it is not probable that gold will be found on their eastern side.

Owing to the great altitude of the plains the mountains do not appear of any considerable elevation when seen from the east side, and it is a fact that most of the western are much more precipitous than the eastern slopes.

These mountains, in the part of which I speak, are generally, except at their summits, well wooded; but owing to the climate the growth of the trees is inferior on the eastern declivity, while from some other cause the flora of the two sides is quite distinct. Perpetual snow only rests on some of the higher peaks; but during the summer falls of snow occur, but the snow does not lie long; a small glacier or two have been seen.

Rivers.—Of the rivers of the district, besides the Athabasca, a tributary of the Mackenzie, up which boats can be pushed to Jasper's House in the Rocky Mountains and the Assiniboine and its tributaries, which can hardly be said to be fit for anything but canoes, there remain Red River of the north, rising near the Mississippi, 280 miles south of the boundary, and running into Lake Winnipeg and the Saskatchewan, discharging into the north end of the same lake, the waters of the Rocky Mountains. These two differ considerably, the former being sluggish and deep, while the latter is swift and shallow.

Red River.—Red River cannot in length be compared with the Saskatchewan, but for the present interests of the interior it is, of more importance than the other. It is somewhat tortuous, but is navigable for small steamers from Lake Winnipeg a considerable distance into the territory of the United States, and I have just heard that a steam-boat, which was built by some Americans last winter, arrived at Red-River Settlement on its first trip on the 10th of June last.

This river rises with the breaking up of the ice, which occurs from the beginning to the end of April, and on two occasions during the memory of the settlers has risen so high as to flood the whole country, destroying houses, cattle, and human life. It gradually begins to fall in June, and is lowest in the autumn.

Saskatchewan River.—The Saskatchewan, unlike the river just described, obtains nearly the whole of its water from the mountains, and has consequently little or no spring flood, but begins to rise from the 10th to 15th of June, with the melting of the snow at those high elevations, continuing high for six weeks or so, and begins to subside again in August; as the cool weather comes it falls rapidly.

Navigation.—Taking either branch of this river, it is navigable for boats from Lake Winnipeg to near the base of the Rocky Mountains, a distance of about 1,200 miles, but for steam navigation the river is but ill adapted, and I am glad to say that I was fortunate to travel on it from its mouth to Fort Edmonton, 1,000 miles up, at a time of year when I saw the water at its lowest, otherwise I might have formed most erroneous impressions. Commencing at its mouth, there is a good entrance from Lake Winnipeg, and a safe and sheltered harbour inside; just above this, however, is the foot of a large and strong rapid above 2½ miles in length, caused by the breaking of the river through a belt of limestone, this is called the Grand Rapid, and is a barrier to the ascent of loaded boats, which the first mile and a half are hauled or "tracked" up in half cargo, and for the remainder or strong part of the rapid are entirely discharged, the cargoes being carried over the mile portage on the north side, and the boats themselves hauled up along the south shore under the limestone cliffs. In making the descent the boats are "run" with full cargo, but not without some risk of striking rocks or stones. For a description of the kind of boat, number of men, cargo, and other particulars, see "Report on the Route between York Factory and Lake Winnipeg," Appendix I.

The worst part of the rapid for steamboat navigation is the lower half, in which the water is shoal the whole way across. As for the upper part, although very strong, a steamer might perhaps be warped up.

This is the greatest, and supposed by many to be the only rapid in this river, it having been stated in the House of Commons, on apparently good authority, that "with this one exception you could take a vessel of considerable size up to the foot of the Rocky Mountains." This is, however, far from being the case.

About five miles above the Grand Rapid, during which distance the river is nearly half a mile wide, Cross Lake is entered, between some islands where there is a considerable current; at the western end of Cross Lake, and between that and Cedar Lake, there are some small rapids, which, during high water, may perhaps be passed, but in the fall of the year boats have to discharge the greater part of their cargoes. Cedar Lake (as will be seen by the map) is one of considerable size, containing numerous islands, and about it is timber available for building purposes, which may also be said of the country east to lake Winnipeg. The south side of this lake is only separated from Winnipegosis

Lake by a little over four miles of land, and where my winter track is shown as passing across is the "Mossy Portage," formerly used by the boats of the Swan River district of the fur trade in going to and from Hudson's Bay.

Lake Winipegosis has been determined to be four feet above Cedar Lake in the spring, but in passing over as I did, without time to measure it, I was under the impression that Cedar Lake was much the higher.

To continue the Saskatchewan River for the next 180 miles or so, to the foot of Thobon's Rapid, just above the "Mosquito Point," owing to the very level and low country through which it flows, is tortuous, and for about 70 miles west of Cedar Lake the waters are divided into two channels, one passing near Moose Lake, while the other runs through Muddy Lake, in the centre of which there is, at low water a small rapid. The northern channel is somewhat longer, and after they unite the river continues of considerable depth, passing south of Pine Island or Cumberland Lake, with which it is connected by streams navigable for boats, and into or out of which the waters flow according to the height of the main river. Through this lake is the route to English River and the north.

Thobon's Rapid is certainly not navigable for steamers at low water, and I should much doubt if it were even at high, but the difference caused by the state of the water in a rapid is so great that it is hardly safe to give an opinion. From this the elevation of the country begins, and there is no rapid until the Nepowewin, about 80 miles below "the Forks;" but I should think that at high water this would be capable of being surmounted.

Thus, in summing up the Lower Saskatchewan River, or Saskatchewan below the Forks, we may say that at high water a steamer could run from Cedar Lake to Thobon's Rapid, and from thence to the Forks. There are, however, a good many shoals, sand bars, or "batteurs," as they are called by the voyagers, below "Pemmican Point." Of the south branch I know little, except by report. It is of a strong current and stony bottom near its mouth, and after that "batteurs" are numerous to within a short distance of the junction of Red Deer's River, the former site of Chesterfield House, and it is said by the few persons who have ascended it in boats to be navigable for steamboats during high summer water.

For some miles above the Forks the north branch is obstructed by a succession of small rapids, usually called the "Col Rapids," this part is certainly impassable for large craft during low water, but those who have seen these rapids in high water think there would be no obstruction to a steam-boat. From the head of these rapids the bed of the river is filled with batteurs or sand bars, as far as the mouth of Vermillion Creek, about 25 miles above Fort Pitt, after which the bottom is usually of a strong nature, which continues to Fort Edmonton, some distance below which there are small rapids and shoal places in the fall of the year. Of the distance to which a steamer would ascend in high water I can give no positive information, but I should suppose that one adapted for that kind of navigation might possibly reach Fort Edmonton, but in low water little could be accomplished in most parts.

This river is usually closed with ice for five months from the second week of November to the second week of April, but of course becomes navigable much sooner than the lakes, which are never clear of ice until June. On the whole it can hardly be considered as a river offering much advantage to steam navigation, on account of its small size in comparison to its length, which need not appear so extraordinary when we consider that it runs through a great extent of level plains, from which it receives no waters, there being a remarkable absence of tributaries. In fact the Saskatchewan does not drain the plains, but traverses the country as a canal fed from the Rocky Mountains, it may therefore be said to have no basin, and consequently "the fertile valley of the Great Saskatchewan, containing an unlimited extent of arable land," really does not exist. The water of the Saskatchewan, except near the mountains, is very earthy, especially during flood, and helps to give to Lake Winipeg its expressive name. Many of those persons who "summer inland," as it is called, that is remain at the forts during the voyaging season, are affected more or less with the goitre, which is attributed to the water. From the Forks upwards the river is generally in a deep narrow valley about 200 feet below the level of the surrounding country, and in many parts having precipitous banks. I ascertained the current at Fort Pitt during high water to be two and a half knots per hour, but during spring and fall it would in most parts probably not exceed two miles.

The fall of the north branch, as determined by barometric observations, is from Edmonton to Lake Winipeg, including the Grand Rapid, at an average of $1\frac{1}{4}$ feet per statute mile, but the rise above Fort Edmonton is probably much greater. Of the south branch there are no observations between its mouth and the site of Bow Fort, which, taking the whole, would give a fall of 4 feet per mile, but of course it would be greater than that in the upper and much less in the lower parts; however, taking its tributary, the Red Deer River at its forks, would give from thence to the forks of the Saskatchewan an average of nearly three feet per mile. We may therefore safely suppose that the fall of the south branch from the site of Chesterfield or its forks to its junction with the north is not over 2 feet per mile, and this is what my observations give on the fall of the north branch from Fort Pitt in the same longitude as the site of Chesterfield House to the junction. After a few days of warm weather during summer the river is sure to rise, owing to the increased melting of the snow in the mountains, and in spring, should the ice choke in any part when running, it causes considerable rise above that point. The thickness of ice in mid-winter is from three to four feet.

Boats and Steamboats.—With regard to the navigation of any part of a river, it is not to be thought that because boats have considerable difficulty it would be impassable for steamers, for boats are, when "tracking," limited to a certain distance from the bank by the length of the line, while steamers can, if required, keep mid-channel. Cord wood for the use of steamboats would be procurable at almost

any part of the Lower Saskatchewan and north branch, but there will probably be found to be a scarcity on the south; it however could be rafted down from near the mountains.

Lakes.—The lakes are a great feature in the eastern part of this district, and from their comparative shallowness may be considered the lowest of the great steps of which this country is made up. The principal ones, and which are connected with each other, are Winnipeg, Manitoba, and Winnipegosis or Little Winnipeg. Owing to the level of the country to the west of the first and surrounding the others, they are of very irregular forms, and this is so much the case to the north of those enumerated that the whole country about Cumberland and "the Pas" is nothing but connected lakes and swamps, very convenient for canoe travelling in summer, as well as being a great resort for multitudes of waterfowl. In the upper parts of the country the lakes are detached, although in some parts pretty numerous, and are mostly valuable as fishing places.

The altitude of Lake Winnipeg is found to be but a few feet above Lake Superior, having been determined by the Canadian surveyors to be 630 feet above the sea. Manitoba is somewhat above it, and there is said to be a difference of five feet in favour of Winnipegosis over the latter.

The greatest depth of Lake Winnipeg as far as yet ascertained is 60, while Manitoba is merely 15 to 18 feet, and with a generally level bottom, the remaining one differing very little, except at its upper end, where it is said to be deep.

A.—II.

NATURAL PRODUCTIONS.

The natural productions of a tract of country of such extent as the interior of British North America may readily be supposed to be very varied; but various as they are, they may be all classed under the three heads—Mineral, Vegetable, and Animal.

Minerals.—From our imperfect knowledge of the greater portion of the country in a geological way, little can be said in relation to its minerals; but to commence with the metals. The province of Columbia and her gold fields not coming under the appellation of "the interior," I cannot record the existence of gold in any part of the country, and the geological structure of the western portion is far from holding out any prospects in that way. Of course there have been here as elsewhere reports of the discovery of gold in certain places, but, as is often unfortunately true, all glittering substances are not gold.

Sir John Richardson's "Journal of a Boat Voyage" contains the greater part of the reliable information concerning the mineral resources of the north, and from that and other statements from actual observation we gain the following information:—that both copper and malachite exist in the region of the Copper Mine River in sufficient quantities to pay the working in time to come when the southern portion of the country becomes peopled, providing that dependence can be placed on an uninterrupted summer of sufficient length; that plumbago is found on Lake Athabasca, as well as iron and mineral pitch, which latter is in abundance, and will probably be for many years of more use than any of the others.

Again, with respect to salt, besides that stated to be found in "a very pure state near Great Slave Lake," there are numerous salt springs on the borders of Lakes Manitoba and Winnipegosis, some of which are now worked to advantage and used at "the settlement" on Red River. Even with the primitive mode in use salt of a very fair quality is manufactured, and from the report of Professor Hind, who geologically examined that district, there is every reason to suppose that salt could be produced in sufficient quantity for the whole consumption of the country. The native salt sells at Red River Settlement for 10s per bushel, all the remaining salt coming from England or the United States, by either of which routes the freight is necessarily high.

Limestone occurs at Red River and the west side of Lake Winnipeg, suitable for building purposes or the manufacture of lime, and there is an inexhaustible supply of granite on the east side of that lake and the country through to Lake Superior and Hudson's Bay. On the Saskatchewan, where there is but little limestone to be found, and where there are no means of burning it, a kind of clay, known by the name of "white mud," is used for white washing and other purposes; and in such a dry climate makes a good substitute for lime.

Of coal, I believe that none of secondary formation has yet been found, except in the Arctic Sea; but what is considered to be a tertiary coal or lignite has been discovered in several places, and, curiously enough, the district in which it exists is that in which wood being rather scarce, it will in time to come (should it prove suitable for domestic and steam purposes) be in large demand.

A small seam of nine inches in thickness was discovered by Dr. Hector on the Assouri River, near the international boundary, in longitude 104° W. It also exists in beds from 2 to 2½ feet in thickness on the banks of the north branch of the Saskatchewan, at Fort Edmonton, and it is said, with little interruption, to Rocky Mountain House, 200 miles above, and as the formation containing this deposit extends considerably to the south (lignite being found on the upper waters of the Missouri), the same substance will probably be found in most of the tributaries of the south branch. It has already been discovered on Red Deer River, in beds so close that out of 20 feet of strata 12 were of coal. This coal of the Upper Saskatchewan is considered to be of a different age to that first found, but no report has yet appeared of its quality. I have seen it in use at Fort Edmonton for the forge, where it is there preferred to charcoal, but is said to require rather a strong draught.

Vegetable Productions.—The vegetable productions of the country, although numerous, are not such as are likely to cause any great traffic with other parts, but will be found of considerable domestic value.

From all accounts the best timbered country is between Red River and Lake Superior, many of the trees flourishing there which do not exist in other parts, while the size of the timber is greater. There can, therefore, be no want of wood for building purposes in that district.

Trees.—The oak is not found to the north or north-west of Red River and Lake Manitoba. The ash extends to the lower part of the Saskatchewan only. One species of maple (ash-leaved) exists on the Saskatchewan and throughout the southern-country, which is much used by the natives for the manufacture of sugar. Elm reaches only to the Lower Saskatchewan. Both balsam, poplar, and aspen are the common trees of the plain country, the former being generally confined to the sandy and moist intervalle land along the rivers, while the latter, which never attains large size, is to be found everywhere, and is the only tree existing on the edges of the dry western prairies. Possibly, the considerable rise in the elevation of these plains may limit some of the species.

The usual members of the pine family are the white spruce (*a. alba*), the American larch or juniper, the fir (*a. balsamea*), and Bank's pine, the last never attaining large size, and the fir being of little value as timber. Building and boat timber is usually cut from the spruce (called "pine" in the country), except when required of particular durability or for some special purpose. This wood has the advantage of being light, easily worked, and of sufficient strength for ordinary purposes, but unless of good size it is by no means free from knots.

White or bass wood is used for some purposes at Red River Settlement, but is confined to the most southern parts of the territory. I should have said that birch exists to a considerable distance north, and is used for carts and sleds when oak is not attainable, as balsam poplar is also sometimes used for building purposes.

The sides of the Rocky Mountains are well wooded, and I doubt not that they will be resorted to to supply the prairie country with timber by means of the rivers. As you proceed northwards, particularly approaching Hudson's Bay, the trees become more and more stunted until you reach the region called "the Barren Grounds."

Grass.—Of other vegetable productions existing in a state of nature, grass for hay is to be found in abundance on the numerous swamps, and in such a region, where the summer is so dry and hot, requires little or no trouble in making.

Grass for pasture is abundant all throughout the plain country, that on the dry prairie being short, but at the same time nutritious, while on the tracts of the former woodlands it is often thickly interspersed with different sorts of vetch, excellent food for cattle and horses.

Berries and Roots.—Berries of different kinds are abundant in most parts of the country, including cranberry, saskatoon, pembina, currant (the black being very fine), gooseberry (small), raspberries, and strawberries, and these are found of great use and much sought after by the natives, where farinaceous food is so scarce. Wild rice is plentiful in the region of Rainy Lake. A root which grows on the prairie is dug up by the Indians and greatly used by them; it is called the prairie "turnip," but assimilates to that root only, I think, in growing under ground, being more the shape of a carrot or rather Jerusalem artichoke, and by no means of the most tender nature. Other roots and barks are used for medicinal and dyeing purposes.

Animals.—I now come to what may be called the staple natural produce of the interior, the animals, for it is on these, their flesh, their skins, their furs, their tallow, and their oil, that the whole of the natives exist, besides being a great source of wealth to those Europeans and others engaged in the Indian trade.

It will be needless here to enumerate the different fur-bearing animals, and out of place to enter into the details of the fur trade, which will be touched upon when I come to speak of the development of the resources of the country; I shall, therefore, refer simply to those animals on which the natives depend for their support.

The use to which the Indians put the larger mammalia, such as the deer and buffalo, is in the manufacture of their skins into untanned leather for wearing apparel, tents, horse and dog-harness, and for the purpose of cords or lines of all sorts, canoes, &c., besides curing the meat and tallow which they get from the carcase for food.

Those tribes inhabiting the north, Hudson's Bay, and other wooded portions of the country exist chiefly on the two kinds of reindeer or caribon and the moose, besides which the black bear, musk rat, porcupine, beaver, and that most useful of all animals in times of scarcity, the never failing rabbit or rather hare, together with fish and fowl. The musk ox is confined to the north.

Buffalo.—Those Indians belonging to the prairie and semi-prairie parts of the great plains depend for their support almost entirely on the buffalo, or, as it should, perhaps, be called, strictly speaking, the bison; and as the Indians of this district outnumber all the others, while at the same time the greater portion of the voyagers and others engaged in the fur trade are fed on provisions manufactured from this animal, together with the half-breeds of Red River, and also, considering the numbers which are wantonly slaughtered, it cannot but appear evident that this animal must exist in immense numbers. Having taken some trouble to obtain the most reliable data in respect of the numbers annually killed, in which I have been aided by gentlemen in the fur trade, I consider since 1842, when the Hudson's Bay Company first commenced to trade to any great extent in robes, there have been no less than 145,000 buffalo annually killed in British territory; while on the great prairies on the American side, where the trade in buffalo robes has been carried on to a far greater extent, the amount annually slaughtered at the early part of the period mentioned was upwards of 1,000,000, but this trade is now said to have decreased on the Missouri one-half. In 1855, on the British side alone, there were 20,000 robes and skins received at York Factory on Hudson's Bay, which, making all allowances, would give about 230,000 slaughtered the previous year. This in a civilized country, allowing 2lbs. per head per diem, a very liberal allowance, would have served to sustain a population of a quarter of a million, while, probably, 30,000 only benefited by this slaughter.

From these statements it is but reasonable to suppose, that although the buffalo still exist in immense numbers, they must be on the decrease, and it is well known that on the southern prairies

they are becoming very scarce, and on the west side of the mountains are extinct; while in the country of the Saskatchewan, notwithstanding that the contrary opinion is held by many, they are also decreasing, being now unknown in places where they were formerly abundant. This the Indians know well, and may yet know to their cost, for if some decided measures be not taken, Indians and buffalo will disappear simultaneously. We may, nevertheless, look for their existence yet for many years, for the decrease in the buffalo on the Saskatchewan does not seem to be proportionate to the numbers killed, and it is a prevailing idea with some people, that the animals are being driven north from the Missouri on to British ground; this may to some extent be the case.

Other Large Game.—As I before stated, the prairie Indians depend almost entirely on buffalo for their support, and the only mode of curing the meat is by drying or "jerking," which may or may not be by pounding and mixing with grease, formed into "pemmican." But those Indians inhabiting the slopes of the mountains and semi-wooded country around the edge of the prairies also kill for the sake of their skins and meat, the wapiti, two smaller kinds of deer, the prong-horned antelope, black and grisly bears, big-horn and mountain goat, besides the fur-bearing animals, and as is the case with all Indians, resort to rabbits in case of necessity.

Birds.—As to birds, many Indians (but more particularly those called "Swampies") exist for a considerable time both in spring and fall entirely on ducks, geese, and other water-fowl, at the killing of which with the least possible expenditure of ammunition they are very expert; and from the nature of the lower parts of the country, water-fowl are in so great demand for food that they are killed for the purpose of salting. As I hope soon to be in possession of returns of the numbers annually killed for that purpose in Hudson's Bay, I shall probably insert some particulars concerning this in a paper on the "Birds of the Interior of British North America," which it is my intention to draw up for the Zoological Society.

The white partridges (grouse and ptarmigan) are also in use as provisions in the north.

Having given this necessarily cursory view of the land animals, I come to the inhabitants of the waters.

Aquatic Animals.—The Esquimaux of the coasts make use of the seal as an article of food and for other purposes, and this, together with the waburs and white bear, is found amongst the Arctic Islands to Hudson's Straits and in the Bay.

Then there is the large white porpoise, commonly called by the residents the "white whale," which is abundant in Hudson's Bay, usually during summer keeping about the mouths of the rivers. This animal has been made a source of some profit to the Hudson's Bay Company by the import into England of the oil extracted from it; and they have of late years established a regular fishery for the same at Little Whale River on the east main. Of the quality of the oil I can only say, that I have heard it is found to answer the same purposes as that of the sperm whale.

Fish.—The fish, par excellence, of the interior is the white fish (*coreyonus albus*), which may be said to be universally distributed through the numerous lakes. It is in the opinion of all who have had opportunities of judging, the only fish of the country which one can live on continually without tiring of it. The average weight may be taken, perhaps, at from 2 to 3 lbs., but in some lakes they grow to large size, and I have myself seen them weighing upwards of 11 lbs., and the average of 200 from 5 to 7 lbs. A smaller species of white fish is found near the mouths of rivers emptying into Hudson's Bay. The fish next in request is the sturgeon, of which there are two or more species inhabiting the lakes and rivers; and although they do not in these inland waters reach the size of the Columbia River fish, yet they are met with in the Winnipeg and Lower Saskatchewan districts to 160 lbs. To give some idea of the rations required to feed the inmates of a trading post, including the dogs, I may mention that at Cumberland House, there are yearly taken 500 to 700 sturgeon and 10,000 white fish, while at the same time potatoes, barley, and a little wheat are grown. There are many other kinds of fish, pike, gold-eyes, trout (some of which attain immense size), cat-fish, suckers, &c., which all serve to keep the pot boiling during hard times.

The general mode of fishing throughout the country (sturgeon included) is with the net, summer and winter; during the latter time the nets are set under the ice. A great advantage of the severe weather of winter is that fish as well as all meat requires no curing of any sort, but is kept frozen; and in the buffalo country it is usual to construct ice cellars on the approach of spring, when a large supply of meat may be kept during the ensuing warm weather.

A.—III. CLIMATE.

Climate.—Having given a general description of the natural productions as well as the physical features of the interior, it is necessary, before speaking of the development of its resources, to give some idea of the climate, and in so doing I shall omit the scientific and unnecessary details, which would rather confuse than elucidate.

There have been and possibly still exist, more particularly in Canada, most erroneous opinions concerning the country and climate of the Red River and the west; I have seen it described as superior even to the south-western peninsula of Canada, which to any observant person must appear absurd; and those who have been led away by such statements need only have looked at any map of the continent to have been convinced that, in the face of 5° difference of latitude between even the central part of that peninsula and the most southern limits of the interior, notwithstanding the westing, this was most improbable.

Materials.—The materials from which a knowledge of the climate of the country under consideration has been drawn are the results of regular meteorological observations carried on simultaneously

at Red River Settlement and Fort Carlton on the Saskatchewan River; two points which could hardly have been more happily situated had they been selected purposely. At Red River two distinct sets of observations were kept up, one at the Hospital of the Royal Canadian Rifles under the direction of Dr. Stranaghan of the Medical Staff; while the other was the continuation of a register kept by Mr. Donald Gunn, of St. Andrews; to both of these gentlemen I am greatly indebted for full copies of their observations. That at Fort Carlton was of observations made during the stay of Captain Palliser's expedition, and afterwards kept up by Mr. Richard Hardisty, the gentleman in charge, and those under him. All the above observations have been discussed for 18 months, commencing November 1857. But besides these simultaneous observations, others have been made on former occasions, among which I may mention those of Lieutenant now Colonel Lefroy, R.A., at Lake Athabasca and Fort Simpson in 1843-4; those of Sir John Richardson and Dr. Rae at Great Bear Lake in 1848-9; those of Franklin's two journeys; besides a number of registers and detached observations collected in Sir John Richardson's "Journal of a Boat Voyage." Also, with a view to assist me in drawing a comparison with the climate of Canada, Professor Kingston, in charge of the "Provincial Observatory" at Toronto, has kindly furnished me with numerous records of meteorological observations.

From these several sources then has the information been drawn, of which, although the results appear small, yet the labour required in carrying out, as well as discussing the observations, is very considerable.

Climate of Interior.—From the maxima, minima, and means deduced from these observations it appears, taking the climate of Toronto as a base, that while the mean summer temperature at Red River differs but little, that of winter falls far below it; and speaking generally, the climate of the interior may be said to be one of extremes. I have drawn the annexed plate in order to show at a glance the corresponding temperatures at the different places selected; which, although not giving the details which would appear in a more scientific paper, yet may be sufficient for the present purpose.

Division of the Seasons.—I have not followed the general mode of dividing the seasons, which, although adapted to temperate regions, fails to give a good idea of a climate where the transition from an Arctic to an almost tropical temperature is so sudden, I have therefore considered the winter season as embracing five months, which leaves summer as usually taken, but cuts off the coldest month from both spring and autumn.

Stations.—The different stations have been selected as those which, from their positions and the number of meteorological observations made at them, would afford the best general information of the climate of the whole country. There are, of course, certain situations where influences of a local nature seem to modify the climate, but these are only exceptions, and do not enter into the general view.

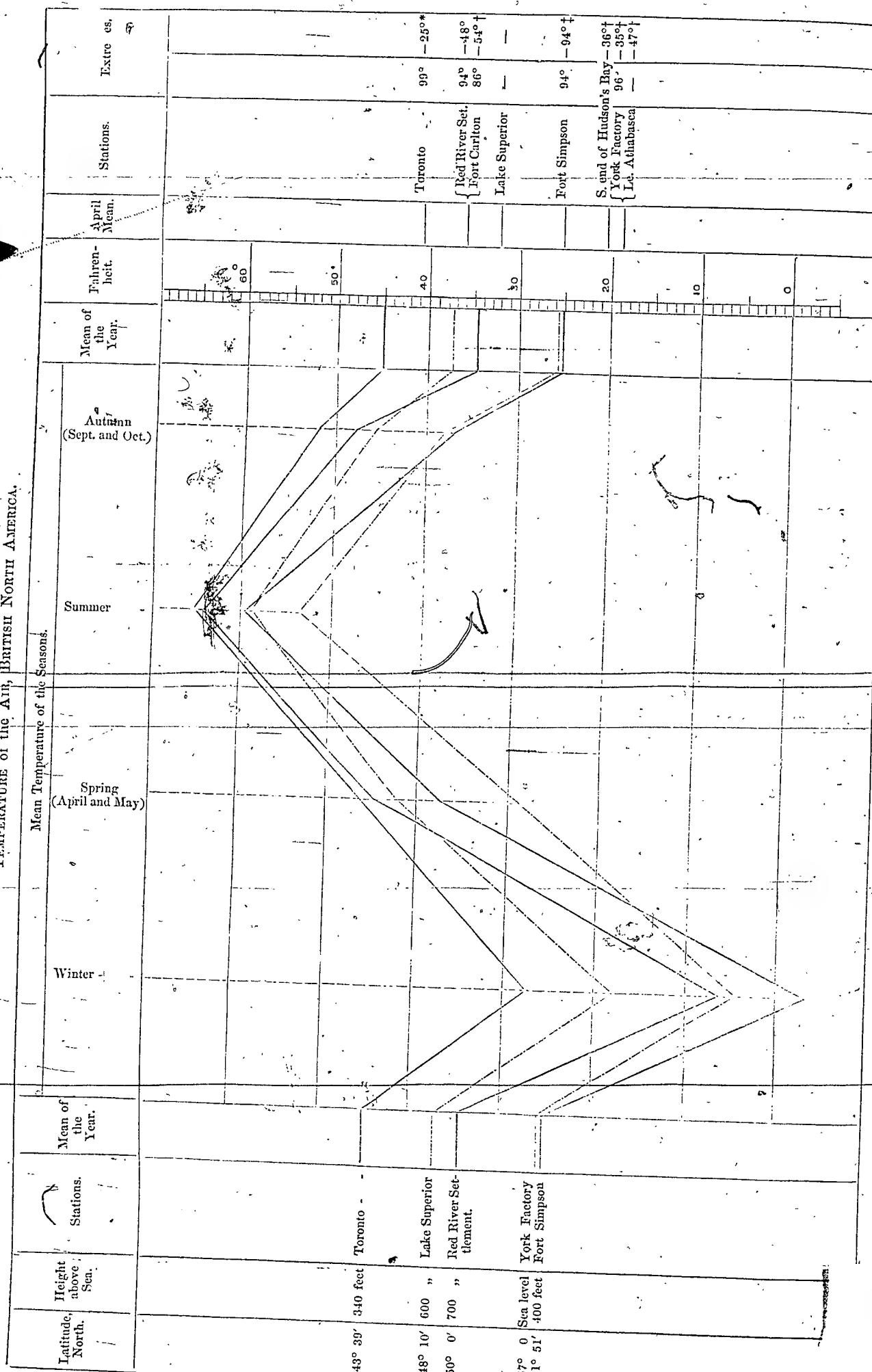
Facts relating to the Climate.—Before attempting to draw any general conclusions, I will direct attention to a few facts which ought to be kept in view. First, the mean annual temperature of the whole interior is lower than Canada; second, that while the mean summer temperature in the southern part is nearly equal to that of Toronto, the winter climate is much more severe; and lastly, the spring temperature of the western plains in latitude 53° N., notwithstanding their elevation nearly equals Toronto, 8° further south.

Influence of Lakes.—Then with respect to the country itself, it must be apparent to any one that Hudson's Bay and the Lakes have very great influence on the climate, particularly with respect to the spring and summer temperature. Hence the wide discrepancy between Fort Simpson and York Factory or the south of Hudson's Bay, which having annual temperatures equal to and above the first, fall so much short of it in the spring; again the backward spring season of Lake Superior results from the ice it contains, while the coldness of the deep water during summer aids in tempering that season; the same holds good for Lake Athabasca. And lastly, the comparatively low spring (particularly April) temperature of Red River compared with the Saskatchewan at so much greater elevation is no doubt due to its proximity to Lake Winnipeg.

In a report contained in the Parliamentary Papers (dated June 1859), concerning the explorations of the country between Lake Superior and Red River Settlement, carried on under the Canadian Government, there is a comparison given of the climates of Red River Settlement and Toronto, and which from its authority might be liable to lead many into error. But it appears that only one year's observations having been taken, and the means deduced from certain hours of the day without correction, it has made the summer temperature of Red River 4° higher than that of Toronto; and again, owing to the estimated amount of rain at the former having been compared with the actual amount at Toronto, has given no less than 21 inches in favour of Red River for the summer season alone. Now, although this may be the case, it is hardly probable; and although the inhabitants of Red River Settlement should take into account the good as well as the harm done by the frequent thunder storms which pass over that region during the hot summer weather, yet I must hold to the opinion that the fall of rain has been somewhat exaggerated. I need only refer to the plate on the following page for the results of carefully corrected registrations of the temperature of the whole year and several seasons, which will, I think, be found not very wide of the truth.

Cold Nights.—It should here be observed, with respect to the climate of the Red River and Saskatchewan-country, that although the summer temperature is high, yet the thermometer generally falls to the freezing point at the end of May and August, and occasionally frosts occur in

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TEMPERATURE of the AIR, British North America.

Mean Temperature of the Seasons.

Spring
(April and May)

Autumn
(Sept. and Oct.)

Extre
es.

11
Stations.

April
Mea

Mean of
the
Year.

Autumn
(Sept. and Oct.)

1

Summer

100

Spring
(April and May)

6

Winter -

114

1862-1863.

Height
above
Sea.

Latitude
North

4. Probably much lower in some winters.

Twenty years' observation. † One year.

every month in the year. I have myself, at 2,000 feet above the sea, registered the thermometer at 86° on the 17th July in latitude 53° , and but nine days after, not having changed my altitude more than 1,000 feet, and to the south of the former position, seen it at 31° at sunrise.

Winter.—Winter may be said to set in with November and last till the end of March or middle of April; but the first snow falls sometimes in the commencement of October and lasts until May. The thermometer ranges over 140° of Fahrenheit.

There sometimes occur most exceptional phenomena; thus, in March 1858, after two days of magnificent auroral displays and intense magnetic disturbance, a cyclone, or revolving storm, which at Red River on the 14th was accompanied by thunder, passed over the country, bringing rain and a rapid thaw; a few days after the thermometer was at 2° , and had been 25° below zero on the 1st of the month.

Rivers and Lakes ice-bound.—Although Lake Winnipeg is seldom navigable before June, yet the Red River and Saskatchewan having been closed for the previous five months usually break up about the middle of April; however this also varies, for on the 1st of May of the present year I crossed the Red River at 49° parallel on the ice with horses; while on the same day, the snow being on the ground, the thermometer rose to 74° .

Wind and Rain.—The prevailing winds at Red River Settlement are north and south, the former being about one-fourth and the latter one-third of the whole from the eight principal points of the compass; the remainder being mostly on the west side. At Red River and on the Saskatchewan, when a north-east or easterly wind springs up, thick weather is certain to follow, which in summer is usually attended with rain and in winter snow; this is, no doubt, entirely owing to the presence of ice at the former and open sea during the latter season in Hudson's Bay; and it should be recollected that the bay has a greater influence on the climate of the more northern part than any other feature of the continent. Were it not for the bay the British territory would be no better than the sterile waste on the eastern flank of the chain of the Rocky Mountains, which is already being felt as such a formidable barrier to the progress of western enterprise beyond the Mississippi valley; and moreover, when we consider that Lake Baikal and Winnipeg are very similarly situated in their respective continents, and that while their mid-winter temperatures differ but little, the isothermal of July for Red River passes considerably to the south of the Siberian Lake through Central France and the Azores, we cannot but feel thankful that the Anglo-Saxon race was guided towards the New World.

Climates of Old and New Worlds.—Many inquire, why the climate of North America differs so much from that of Europe? But the converse should rather be asked; why does Europe differ in climate so greatly from North America? which could be answered in the few words,—on account of the gulf stream. And in comparing the climate of the two continents, we should rather contrast Europe with the Pacific side of North America and the eastern or greater portion with Asia; thus we bring together two regions having for the amelioration of their climate similar causes, namely, the gulf stream of the North Atlantic, and if we may so call it, the Pacific gulf-stream, while the two other masses of land are under much the same conditions with the exception, perhaps, of Siberia containing no equivalent to Hudson's Bay.

B.

THE INHABITANTS.

The inhabitants of the vast but thinly populated interior of Northern America are separable into four divisions; namely, North American Indians; Esquimaux, whites, and half-breeds; the aborigines being the most numerous, and the whites considerably in the minority.

I.

ABORIGINES.

Esquimaux.—First, in speaking of the Esquimaux, or Arctic natives, I will give in a few words such information as I have gained from the works of explorers and by intercourse with gentlemen of the fur trade.

The Esquimaux, as one person remarked to me, "are not Indians, we never call them Indians," said he; "they are as distinct from the real Indians as the negro from the white man; they are more like Europeans in appearance, traditions, and mode of life." Little doubt exists but that the Esquimaux of the Arctic regions of Europe, Asia, and America are the same race; but I shall leave to ethnologists to determine where was their original habitat, or how and for what purpose they were distributed as we now find them, as well as the origin of the Indians of this new world. Besides assimilating to the whites in appearance, the Esquimaux possess a quality in common with them, which I may say is almost unknown among Indians, namely, providence; thus, in the season when the animals are plentiful on the shores of the Arctic Sea, they make "caches" of large quantities of meat for winter use.

Speaking generally, this nation is confined to the shores of the Arctic Sea, the northern and eastern parts of Hudson's Bay, and Labrador; and missionaries have only come in contact with them on the east main and last-mentioned place. Parties of them, inhabiting certain districts, are spoken of as being treacherous, and others again as quite the reverse.

The art of dog and sledge driving is known almost to perfection among them.

Localities of Indian Nations.—In enumerating the different nations and tribes of Indians inhabiting the interior, I shall not include those of Canada, for whom provision is made in that province, nor can I speak of the numerous inhabitants of the Pacific coast.

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According to ethnologists, the different tribes inhabiting the country are ranged under five great nations—the Alsonquin, Dacotah, Chipweyan, the Kutchin, and those of the Pacific slope, which severally include the tribes as here enumerated:—

1. Aborigines.—1. Crees of the coast.
 2. Swampy Crees.
 3. Thickwood Crees.
 4. Prairie Crees.
 5. Mountain Crees.
 6. Saulteau or Chippeway.
2. Dacotah.—1. Sioux.
 2. Assiniboine or Stone Indians (prairie and wood).
 3. Blackfeet (including Blood and Piegan.)
3. Chipweyans.—1. Chipweyan (proper).
 2. Hare Indians.
 3. Dog Ribs.
 4. Beaver Indians.
 4. Lucree (Circees.)
4. Kutchin or Loucheaux.
- 5.—1. Kootonays.
 2. Flathead.
 3. Shoushwap.

To begin with the north, the different tribes of Chipweyans extend from the north-western part of Hudson's Bay across the continent to the Pacific, bordering the Esquimaux on the north, except westward of Mackenzie's River, where the Kutchin interpose, who extend into the Russian dominions, and are said to be a people of large stature and warlike nature.

To the south of the Chipweyan barrier comes the Algonquin nation, whose representatives in the interior are the different Crees and the Chippeways or Soulteaux; the latter are almost exclusively confined to the south part of Lake Winnipeg and the country thence to and around Lake Superior. But the Crees are distributed over the whole country around Hudson's Bay, and west to the Rocky Mountains; they are numerous, and from the fact of their having always been favourable to the traders and the first to obtain fire-arms, are a powerful people. There can be little doubt but that they were in former times Indians of the woods and confined to the east of Lake Winnipeg; and I think that Sir Alexander Mackenzie's theory of the progress of the different nations is not far from the truth when he says that the Algonquins have progressed westerly, the Chipweyans easterly, and the Dacotahs northerly.

The Dacotahs, of which the Sioux tribe form the greater part, being of themselves 30,000, are mostly confined to the territory of the United States; but the Assiniboine or Stone Indians of the plains of the Saskatchewan are of the Surix tribe, although they have been for many years separate from it, and the Blackfeet, three divisions of which tribe extend to the Saskatchewan near the Rocky Mountains, are all said to belong to the same nation.

Shoushwap.—On the Pacific side, but near the Rocky Mountains, are the Shoushwap, who, inhabiting the upper part of Frazer's River and the north fork of the Columbia, have always behaved peaceably towards the whites; but in search after the precious metal, unthinking persons may yet make formidable enemies out of beings heretofore considered harmless.

Kootonays.—To the south of these are the Kootonays, who it would appear are not a numerous tribe; they live in peace with their southern neighbours, the Flatheads, who, as they seldom come north of 49°, do not properly come under observation here. These two tribes have in times gone by joined for the purpose of carrying on war with their mutual enemies, the Blackfeet, who have usually commenced the quarrel by stealing horses, in which these western slope Indians are rich. Although a quiet, peaceful, and honest tribe, the Kootonays are said to be remarkably brave, and have on different occasions made such a display of strength that their former enemies are now glad enough to keep on terms of friendship with them. Some of the Blackfeet, therefore, usually meet them yearly when they come to the east side of the mountains (which they do regularly in the spring and fall for the purpose of killing buffalo, and curing the meat for their own subsistence and trade) for the purpose of traffic and exchange of horses, guns, blankets, and other indispensables of savage life.

Some years ago they went so far as to exchange two lads for the purpose of learning each other's languages, one of whom (a Kootonay) became useful to me as an interpreter when amongst his people. Another one, who acted as guide and interpreter in my second passage of the mountains, had when young lived a considerable time with both the Crees and Blackfeet, and boasted that he could count ten in as many languages as he had fingers on his hand, namely, Kootonay, Flathead, Blackfoot, Cree, and French, he having learned the last from the half-breed French Canadian traders.

From these circumstances, the care they bestow on their horses and cattle, and from not being addicted to begging or stealing, the Kootonays contrast favourably with the Indians of the east side, and as I have already mentioned (see Appendix II.), I am at a loss to know what to attribute this marked difference. If, as I have premised, it can be attributed to their partial Christianization, still it remains a contrast to the effects produced elsewhere. It appears to me that they are in a state highly favourable to further civilization; and I would select the tobacco plains (the centre of their country) as a point well adapted for one of the Indian agricultural settlements, which I should propose to be established by this country for the benefit of the natives of the interior. When, indeed,

we look on the state of the aborigines throughout the world, but more particularly in North America, where the march of civilization has been so rapid, we cannot but feel that we owe something to those poor uncivilized people whom we deprive both of their lands and means of existence. This has been so ably pointed out, by Mr. Hopkinson in a speech on the Seminole war on the floor of Congress, that I make no apology for giving his precise words:—

Duty towards the Indians.—“ I may say, however, that I presume the origin of this war is the same with all our Indian wars. It lies deep, beyond the power of eradication, in the mighty wrongs we have heaped upon the miserable nations of these lands. I cannot refuse them my heartfelt sympathy; reflect upon what they were, and look upon them as they are. Great nations dwindled down into wandering tribes, and powerful kings degraded to beggarly chiefs. Once the sole possessors of unmeasurable wilds, it could not have entered into their imagination that there was a force on earth to disturb their possession and overthrow their power. It entered not into their imagination that from beyond that great water, which to them was an unpassable limit, would come a race of beings to despoil them of their inheritance, and sweep them from the earth. Three hundred years have rolled into the bosom of eternity since the white man put his foot on these silent shores, and every day and hour and every moment has been marked with some act of cruelty and oppression. Imposing on the credulity and ignorance of the aborigines, and overawing their fears by the use of instruments of death or inconceivable terror, the strangers gradually established themselves, increasing the work of destruction with the increase of their strength. The tide of civilization, for so we call it, fled from the inexhaustible sources in Europe, as well by its own means of augmentation, swells rapidly and presses on the savage. He retreats from forest to forest, from mountain to mountain, hoping at every remove he has left enough for his invaders, and may enjoy in peace his new abode; but in vain, it is only in the grave, the last retreat of man, that he will find repose. He recedes before the swelling waters; the cry of his complaint becomes more distant and feeble, and soon will be heard no more. I hear, sir, of benificent plans for civilizing the Indians and securing their possessions to them. The great men who make these efforts will have the approbation of God and their own conscience, but this will be all their success. I consider the fate of the Indian as inevitably fixed. He must perish. The decree of extermination has long since gone forth, and the execution of it is in rapid progress. Avarice, sir, has counted their acres and power, their force and avarice and power march on together to their destruction. You talk of the scalping knife, what is it to the liquid poison you pour down the throats of these wretched beings? You declaim against the murderous tomahawk, what is it in comparison with your arms, your discipline, your numbers? The contest is in vain, and equally vain are the efforts of a handfull of benevolent men against a combination of force stimulated by avarice and the temptations of wealth. When in the documents on your table I see in the triumphal march of General Jackson he meets from time to time (the only enemy he saw) groups of old men and women and children gathering on the edge of a morass, their villages destroyed, their corn and provisions carried off, houseless in the depth of winter, looking for death alternately to famine and the sword, my heart sickens at a scene so charged with wretchedness. To rouse us from a sympathy so deep, so irresistible, we are told of the scalping knife and the tomahawk of our slaughtered women and children. We speak of these things as if women and children were unknown to the Indians, as if they had no such being among them, no such near and dear relation, as if they belong only to us. It is not so. The poor Indian mother, crouching in her miserable wigwam or resting under the broad canopy of heaven, presses her naked infant to her bosom with as true and fond emotion as the fairest in our land, and her heart is torn with as keen anguish if it perish in her sight.”

Management of Indian Affairs, United States.—The people of the United States have so far taken this subject into consideration, that a large sum is annually granted for the benefit of the aborigines, a portion of which has of late years been expended in a manner likely to be of more permanent benefit to them than the former system of Indian (so called) “presents” still carried on in Canada. In the central governments of the United States the office of Indian affairs is a branch of the department of the Interior, the business connected with which is under the control of the “Commissioner of Indian Affairs,” who annually makes his report, which accompanies that of the Secretary of the Interior, and is published by the country and distributed among the members of Congress; and I have now before me the report for 1858, by which it appears that scattered throughout the Union are about 350,000 Indians, among whom are located near a hundred superintendents, agents, teachers, and farmers, whose reports are all annually published.

With respect to the manner of treating the Indians, the words of the Commissioner are “Experience has demonstrated that at least three serious, and to the Indians fatal, errors have hitherto marked the United States policy towards them, “viz., their removal from place to place as white population advanced, the assignment to them of too great an extent of country to be held in common, and the allowance of large sums of money as annuities for the lands ceded by them. These errors, far more than the want of capacity on the part of the Indian, have been the cause of the very limited success of constant efforts to domesticate and civilize him.”

But each year more attention is now being directed to the establishment of schools for farming and useful arts, and in some places the Indians seem to have already derived much benefit.

The Indians on the East Side.—Before making this digression, I submitted some general statements concerning the different nations of Indians, and having in a former report (see Appendix II.) described more particularly those Indians which I came in contact with on the west side, I shall now proceed to notice the tribes whose hunting grounds lie to the east of the Rocky Mountains, and who are more properly the aborigines of the country treated of in this report.

Chipweyan.—Of the northern tribes I have no personal knowledge, but the Chipweyans, with the exception of one band originally Beaver Indians, who now live on the Saskatchewan prairies under the name of Circees or Surcees, are purely Wood Indians, and are said, when the language is acquired, to be by no means difficult to deal with; and their country being mostly thick woods, and intersected by numerous rivers connecting the different lakes, their mode of life differs little from other inhabitants of similar districts, where the horse being unknown, the facilities for transport are confined to the canoe and snow shoe. Traders having been among them for many years, they are now, in common with others, dependent on the whites for articles of every-day use.

Coast and Swampy Crees.—The country around Hudson's Bay, and including its southern extremity, called James Bay, is thinly inhabited by Coast and Swampy Crees; and the latter extend as far inland as English River, Lake Winnipeg, and the lower part of the Saskatchewan; there are also many at the Indian settlement near the mouth of Red River, but they have only been drawn there by the advantages afforded by civilization, and of these there are few that can be called pure Indians. This is much the case throughout the whole swampy portion of the Crees, owing to their having been longer associated with whites than any other tribe. In fact, the Crees generally may thank the traders for the greater part of the interior, they now have in their hands, for it is not a great many years since the Blackfeet held the whole Saskatchewan plains, at which time the Stone Indians or Assiniboines inhabited the country lying along the river of that name, and the Crees were confined mostly to the thickly-wooded country to the north of Lake Winnipeg, and between that lake and Hudson's Bay. On the fur trade, however, being pushed up the Saskatchewan and the Crees obtaining fire-arms of the traders, they drove the Blackfeet and Fall Indians, or Gros Ventres, west, at the same time taking to horses, they gradually became Prairie Indians, and forming a league with the Stone Indians, who, as late as 1819, could not obtain guns in trade at the forts, succeeded in confining Blackfeet to the limits they now rarely overstep, namely, from the upper waters of the Saskatchewan in a line towards Fort Union on the Missouri, as shown on the map. Crees also inhabit the country to the north of the Saskatchewan, where they are mostly what are called thick or strong-wood Indians, there being only a few horses among them.

Treatment of Horses.—The Crees of the prairies, or as they are usually called by the English speaking portion of the inhabitants, "Plain Crees," show a great want of knowledge and feeling in the treatment of their horses, which is also largely shared in by their "half brothers," who call themselves civilized. A horse by them is treated like a dog (and dogs certainly do not experience the kindest treatment at the hands of the Indian women), and they are so given to barter, that if any kind of brute having four legs and a head is offered, and some trifling article to boot, a Cree will close the bargain; there are, of course, exceptions.

There can be little doubt that the Crees originally had no horses, which their word for a horse "Mistatim" (big dog) clearly shows. We may, however, say that of all the Indians, if we are to believe that the animal did not exist in America before the invasion by the Spaniards.

The Stone Indians or Assiniboines show equal ignorance of the horse with the Crees.

The Blackfeet, being further west and south, treat their animals better, and have more of them; but the Kootonays before spoken of, living on the west side of the Rocky Mountains, have more knowledge, take more care of, and own many more horses in proportion to their numbers than any of the tribes on the east side, besides which they are adepts at the use of the lasso.

All Indians own large numbers of dogs, which are used in hauling lodge- or tent poles and other loads. They live on what they can pick up or steal, and are managed by the women. They have mostly a very wolfish look, and often breed with those hyenas of the north.

Chippeways.—The Chippeways, or as they are also called Saulteaux and Ojibeways, are in language and habits nearly related to the Crees.

They are, I think, generally speaking a fine race, as I have seen many men of large stature among them, and on an average (although I have not data on which to give a decided opinion) are probably over the height of Anglo-Saxons, from whom the Indians generally differ little, although they are usually not so stoutly formed as the white man.

The Chippeway country is around Lake Superior and Red River, a few being to the west of Lake Winnipeg. They are essentially Wood Indians, but some few, as is always the case, bordering on the prairie Indians, have fallen into their mode of life. They seem to be, if we may judge from the reports of travellers through their country, somewhat noted for their eloquence, but to make a little too much out of Indian speeches is an error into which many persons fall.

However the Chippeways are a good deal mixed up with half-breeds and Swampy Crees at Red River Settlement, some going under the name of Christians, and are generally very favourable to the whites.

Sioux Nation.—I have last to speak of the Sioux or Dacotah Indians, the mention of whose name strikes terror into the mind of many a young half-breed, brought up to regard them as inveterate and bloodthirsty enemies.

Stone Indians.—The Stone Indians or Assiniboines were of this people, but in times long past separated from the main tribe, and now live at peace with the Crees from the Missouri to the Saskatchewan, besides a few families along the Rocky Mountains. Within the memory of man they have been dreadfully reduced by that scourge of savage life, the small-pox. In habits they differ little from the Crees, but were formerly considered much greater thieves.

Sioux.—The Sioux proper do not live to the north of the international boundary, but as they are often encountered by the Red River half-breed hunters, who are their inveterate enemies, I considered that I was bound to introduce them here. They are numerous, and said to be brave,

and the Salteaux (Chippeways of Red River) are their perpetual enemies, and sometimes join the half-breeds for the purpose of chastising them.

Blackfeet.—The Blackfeet, who are said to be of the Dacotah nation, and of whom the different branches, Blackfeet proper, Piegan, Blood Indians, and Gros-Ventres or Fall Indians are still in large numbers, constitute a powerful tribe. This people is, perhaps, of all the Indians east of the Rocky Mountains the least dependent on the whites, and having in times past caused considerable annoyance to the traders by their depredations, and, moreover, being seldom at peace with the Indians around them, they received a bad name, which has clung to them. Since, however, I have had opportunities of judging of their character compared with that of the other tribes inhabiting the plains, I have formed a more favourable impression of them. They are, in common with their neighbours, the Crees and Stone Indians, great thieves, as also beggars, but on account of having been brought less in contact with the whites, they have a more independent manner. Their chiefs also have some command over their men, which is but very slightly the case among either Stone or Cree Indians. They are true Prairie Indians, and occupy the whole country from the Missouri on the south to the Saskatchewan on the north, near the Rocky Mountains. Their territory formerly, as has been said, extended far to the east. The buffalo is their main support. From conversations which I had with several of them, it would appear that they are favourably inclined towards the introduction of civilization among them, which has as yet hardly been attempted. They are aware that the buffalo are rapidly decreasing, and foresee that their descendants will have to take to some other way of living than the lazy yet not luxurious mode followed at present. The custom of polygamy is more prevalent among them than with the Crees, but the women are better looking and far cleaner than their neighbours. The men are also I think generally more robust. Owing to the laws of the United States prohibiting the sale of spirituous liquors to the Indians, they can obtain very little on the Missouri, and although they go there to get their goods at the cheaper rate, yet they often travel five or six hundred miles for the purpose of obtaining the much coveted commodity at the Hudson's Bay Company trading posts on the Saskatchewan River, where they are never refused if they pay in horses or dried provisions. The scenes which ensue on these visits of bands of Indians for the purpose of liquor trade are beyond description. It is not uncommon for wives to be offered in trade for rum. They are so fond of the liquor that, although they know that they become poorer by taking it in place of useful articles, yet they say that they hope it will not be prohibited. Certain it is that if there were a law enforced against it on the British side of the line, the trade in buffalo robes and provisions would decrease considerably on the Saskatchewan. However, let us hope that such a state of things will not much longer exist, but that a law being enacted, it will be the duty of an Indian Commissioner and his agents to put a stop to this demoralizing traffic. All missionaries agree on this point, that they can make nothing of the Indians where liquor is in use, and I have been repeatedly solicited to use my best endeavours for its suppression. Moreover, the gentlemen of the fur trade, who deal directly with the Indians, would only be too glad to see the system of liquor traffic or "presents" entirely abolished.

Mode of Life of Indians.—In speaking of the mode of living of the Indians, we must separate those inhabiting the thickly wooded country from their brethren of the prairies; and taking first of all the thick-wood Indians, including the different tribes that extend over the whole country, except the plains to the south of the Saskatchewan River, they may be said to live much in the following manner.

Thick-wood Indians.—During the summer they move about by means of canoes, usually a few families together, living on the fat of the land, namely, waterfowl, fish, berries, &c., while fur taken at this season being of little value they live a rather lazy life. Before the end of the autumn they find their way to their separate trading posts, and then take a number of supplies required for the coming winter "in debt," the amount of which depends on the trader's opinion as to their hunting powers. With this they make off to the region of their intended winter hunting grounds, sometimes prosecuting a fishery before the setting in of winter. During the winter they form their tents in a more permanent manner, in order to resist the cold, and do not often shift their camps, from whence they trap, hunt, and gradually accumulate fur. Some keep a fishery going the whole time for their subsistence, but occasionally, on the failure of this and the scarcity of game, they are reduced to great straits for existence; cannibalism is, however, rarely heard of.

Some of the men may visit the fort during the winter for the purpose of obtaining a few additional supplies. When the rivers open in the spring they depend largely on waterfowl for their support, and make their way to the forts, where, if they have been successful in hunting during the winter, they pay off their debts, and procure ammunition and other requisites with the balance of their furs. It is customary also in the country around Lake Winnipeg and the Saskatchewan to give each Indian a present of rum on his paying off his debt, and moreover (although I believe it is against the regulations of the Hudson's Bay Company) to sell him more liquor if he wishes it for his extra furs. I must say, however, that the gentlemen of the fur trade are in many cases driven to this practice by the competition kept up in some parts of the country by the petty traders.

Prairie Indians.—The life of a Prairie Indian is of a more free and independent nature. During the summer he roams about the plains following the buffalo, and living on them, and in the winter, camped usually in the shelter of woods, he still lives on buffalo, of which he often catches numbers at a time by means of the "pound." These Indians, although inhabiting the comparatively small portion of prairie country, outnumber all the other Indians scattered over the interior east of the Rocky Mountains. They live usually in large bands, seldom less than 40 tents, 420 fighting men, or 400 souls together. They exist entirely by the buffalo, the skins of which are dressed for shoes and other clothing, and also for their tents. They seldom eat anything but buffalo beef, and

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accumulate the dried meat and grease of the animal, as well as the skins, for trade. They own numbers of ponies and dogs. When short of ammunition, tobacco, knives, or other necessaries, they visit one of the trading forts, which, on account of the numbers of Indians who come in to trade at the same time, are surrounded by high stockades for defence in case of disturbance. Spirituous liquors are traded *ad libitum*, and the scenes of drunkenness and riot witnessed on the arrival of a band of prairie Indians are almost beyond description, suffice it in this place to say that the amount of well-watered rum which is given in exchange is of but slight value when compared with the provisions, skins, and horses obtained from the Indians. So well is the knack of dealing with Indians known by those engaged in the trade, that it is rare to hear of any serious disturbance. Guns, blankets, cloth, tobacco, ammunition, knives, &c. are obtained by these Indians at the forts, but they are not nearly so much dependent on the whites as the wood Indians before described.

Numbers of Indians.—According to the most reliable estimates, the number of wood Indians of all tribes east of the Rock Mountains, excluding Canada, is 20,000, while the prairie Indians trading on the Saskatchewan, Assiniboine, and Quappelle Rivers have been estimated at 26,000. This includes those who also trade on the Missouri, and live as much on one side of the line as the other; but deducting them, I think this estimate is considerably beyond the mark, and I regret that the returns of a census made by the orders of the Hudson's Bay Company during the winter of 1857 and 1858 have not yet reached this country, which would have allowed me to have given accurate returns of the different tribes. The Esquimaux, who are not included in the above numbers, are supposed to be about 4,000. Thus there are about 40,000 souls, whose welfare it would be but right to consider when making provision for the government of the country they inhabit.

There is but one treaty in existence with any Indians on the British side of 49°, and this was a bargain made by Lord Selkirk with the Chief of the Red River Chippeways, for the land on either side of Red River above what is known as the "Sugar Point," extending as far back from the river as "on a clear day a man can be distinguished from a horse," while the Americans have made treaties and bought land to the very foot of the Rocky Mountains. But this system of treaty making with aborigines may be abused, and without doubt the payment of an annual sum and his removal to a distant locality can hardly be called a recompence to the Indian, who, if he goes not willingly, is forced to give way to the white man. If he could still live in the way in which he has been brought up, then the payment of beads, blankets, and other articles of Indian use, would be a fair recompence; but with civilization closing in upon him these things only serve to help him to drag out a miserable

Real Benefit. ought to be conferred on the Indian is, that as he cannot live much longer by the chase he should be taught to live by the soil. The Indians, although they are often called "wild untutored beings," when they do speak usually speak to the point; and as when travelling in the interior I took every opportunity of conversing with them on the subject of which they could give me the best information, namely, themselves, I shall here give some of their ideas on their present state and their wishes as to the future.

Indian Talks.—I may premise by saying, that in holding a "talk" with Indians, I always first plainly stated that I had been sent out by Her Majesty for the purpose of examining and mapping the country, and for inquiring into the state of the Indians of the different tribes; that the Queen had sent them no presents because she did not know whether they were good or bad people; and I usually stated that the reason of my travelling with so small a party was because I trusted to their honesty and good faith; at the same time explaining to them that in our country we had very large guns which would kill at a long distance, and that in one battle there were as often as many killed as their whole tribe numbered. I would add that I was sure Her Majesty would be glad to hear a good report of them, and if they had any messages for Her that I would take it down in writing, in which they have great faith. I made no promises of rewards for good conduct, or anything of that sort, but said that I should report what I had seen. I refused all presents of horses, robes, or other things, telling them that I could not take as I could not repay, for they always expect payment.

After the speeches were over we used to carry on a good deal of talk in questions and answers, which elicited much valuable information.

State of Indians.—There were very few who on commencing to speak did not mention that they were very poor, that they were very thankful to Her Majesty for thinking about them in the manner detailed in a portion of a speech given in Appendix II.

The Indians of the Saskatchewan have generally the idea that the British have a right to the country in which the Hudson's Bay Company trade, and they do not wish that it should come into the hands of others, although they are aware that the Indians on the American side receive payments for these lands, and in fact many of the Blackfeet, whose hunting ground is divided by the boundary line, and who actually receive the yearly payments, have told me that they do not wish payment for their lands, for they have the idea that the payments bring sickness amongst them. The Indians of the prairie are, however, opposed to the country becoming settled up like the Red-Rivers, which many have seen and all heard of. They would wish there to be plenty of wild animals, and that the traders (whom they consider to be under the immediate control of Her Majesty) should be made to pay them good prices for the produce of the chase. This, however, they know cannot last long, for year by year they see the animals decrease, and although they consider that they will last their time, and that by them they will be able to keep themselves in tobacco, ammunition, and other requisites, and have an occasional drinking bout, yet they know too well, as one man expressed himself to me, "If this continues our children cannot live;" and whereon I have said that in our country we were able to live independently of the chase by keeping domestic cattle, growing crops, making cloth, &c., I have

always been asked to use my best influence to have people sent out to bring up their children to this way of living.

Missions.—Many of them have seen missionaries, and some have, perhaps, derived spiritual benefit from them, but as they say of them, "these praying chiefs tell us what we ought to do and sometimes give us tobacco when we attend their church gatherings, but we cannot always live in one place as they do, because we must hunt for our subsistence; but they can do so because they have goods sent over the sea with which they buy the provisions which we furnish. If it were not for us they could not remain here."

This is true enough, and as these remarks have led to the subject, I will here notice the progress of missionary enterprise in the interior.

B.—II.

INDIAN MISSIONS AND SETTLEMENTS.

Missionaries.—The first missionary who entered Rupert's Land, Mr. West, was sent out by the Church Missionary Society in 1820. He established a mission at Red River Settlement for the benefit of Scotch settlers, half-breeds, and Indians. Since that time there have been many missionaries sent out by this and other societies, and they number at present—

Church of England	-	-	20
Wesleyans	-	-	5
Presbyterian	-	-	1
Roman Catholic, about	-	-	15

besides many native and other schoolmasters.

Out of the 40 clergymen one-half are at the Red River Settlement, where the greater part of their work is among the half-breeds and white residents, who, if left to themselves, would be well able, and, in most cases, willing to support their own clergy and schools. At Red River, however, the necessities and many of the luxuries of civilized life are to be had, besides which a regular postal communication being kept up with the United States, it serves as a sort of transition chamber in which the missionary, fresh from the refinements of home, may be somewhat prepared for life in the wilds. The remainder are scattered throughout the Indian country, from Hudson's Bay to near the Rocky Mountains, and from Red River to Fort Simpson on Mackenzie River, the established stations being marked on the map.

Effects produced.—The effects produced by the missions are not so apparent as from the missionary reports charitable subscribers would be led to suppose, when they see a gain of so many hundred Christians or a certain number of extra communicants over the year previous. For how many of these so-called Christians are even in outward form worthy of the name? I am sorry to say (but were I not to do so I should be bursting approbation at the expense of truth) that there are but very few "Christian Indians" who do not still repose implicit faith in the conjuring tent and medicine man. Few, indeed, there are in civilized life who can or ought to be called real Christians. I will not comment on the merits or demerits of missionaries or of the system, but as the "light of Christianity" is so favourite an expression, I would ask how can it be expected that this light can be disseminated without the atmosphere of civilization.

At two places only has the domestication of the Indians been in the least effected, namely, Rossville near Norway House, by the Wesleyan Missionary Society, and at the "Indian Settlement" on Red River by the Church Missionary Society. At these the improvement is apparent; although the missionaries have neither the power nor the means of carrying out all their objects.

The fact of missionaries being by their position forced to trade and bargain with the Indians has a bad effect, for the Indians come to look upon them as traders working for their own benefit. And another evil which unfortunately cannot so easily be remedied is, when the Indians see a missionary of one persuasion working against one of another, they begin to think which of the two is to be believed, for each says the other is doing wrong.

Indian Commissioner and Settlements.—Taking into consideration all that has been urged, I would propose the appointment of an Indian Commissioner for the interior of British North America, whose first duty should be to travel through the country, visiting the different tribes of Indians, and selecting certain locations in the more habitable portion for Indian agricultural settlements; although, with some knowledge of Indian character, he should be at the same time in no way connected with the Indian by blood, but agents whom he would employ might be half-breeds or others used to the ways of the country. A certain sum being placed at his disposal, he would proceed to establish agencies at the different points selected, and in carrying them out he should select at first (according to the means at his disposal) one or two places where the buildings and other requisites of the agency should be completed, and the agricultural implements and stock be supplied as soon as possible; after which the staff for the agency should be located. This would probably consist of a superintendent who understood farming; a school teacher, a carpenter, and perhaps a blacksmith, with two or more men used to farming and general work. Missionary societies should be invited to establish missions at these settlements, a certain portion of land being allotted for that purpose. I would, however, strongly recommend no favour being shown to any particular sect.

The Indians of a certain district would be encouraged to settle on lands which would be regularly laid out on the reserves, and they would receive help from the agency in putting up buildings, &c. The domestication of old persons, who all their lives have been accustomed to roam at large, must seldom be looked for; but the great point is to get them to live about or frequently to visit the agency, so that the children (whom they have great objection to part with) may be instructed, both in the school and farm or workshops. Sunday should be given up for religious instruction and

recreation, and the superintendent should be allowed in no way to interfere with the missionaries of whatever denomination. A regular scale of payments should be adopted, and every Indian should receive remuneration for any work done on the agency.

Every exertion should be used to gather a large amount of stock as early as possible, because many of the more aged individuals might take to such work as cattle keeping, and thereby living about the place, allow their children to be instructed. A medical man should be under the orders of the Commissioner, who could travel about, visiting the Indians for the purpose of vaccinating them and giving medical advice.

Indian Reserves.—I would recommend that the different portions of country to be kept as Indian reserves be at once defined, and due notice given that any persons besides Indians settling on these tracts would, when required, have to give up possession without remuneration. Moreover, in order to prevent Indians being dispossessed of their lands, a law should be enacted preventing the transfer of land from the Indian to the white man or half-breed.

Treatment of Indians.—I have previously mentioned (Appendix II.) that although I travelled among large numbers of Indians, I had never any difficulty with them. This I attribute mainly to having always appeared to repose entire confidence in them, and never attempting to pass through any part of the country unseen, for the Indians are such adepts at stealing, deceiving, and other underhand practices, that if recourse be had to these measures, they are only too ready to follow up to your disadvantage; but on the contrary, deal with an Indian openly, and trust to his honour, ("there is honour among thieves,") and you may usually rely upon his acting fairly.

Missionary System.—In the early pages of this section I have endeavoured to give a faithful picture of the present state of the aborigines, while in the latter part I have set forth (but necessarily omitting numerous details) my own views of the manner in which they may be most benefited, for I am inclined to the opinion that the wild man is not altogether incapable of civilization; but at the same time, from the numerous examples of the objects of the present missionary system which have come under my notice, I am convinced that scattering abroad the seeds of Christianity without simultaneously preparing the unbroken land for its reception is of little avail. Some seeds of course falling in favoured spots, spring up and bear fruit, but these are only exceptions, which do good only so far as to show us what the soil is capable of producing. Many of the industrious and self-denying missionaries would repeat these words, but the fault does not rest with them, they carry out all that their means will allow, and can only look to a change in the system for the advancement of the cause.

I feel sure that, owing to the prevailing opinion of missionaries and missionary work, some of my statements will not be received without hesitation, but I must simply say, that in the case where the interests of many are at stake in opposition to the prejudices of a few, I have only endeavoured to present the picture in an impartial light. I might have entered into details and produced examples in order to substantiate these statements, but this, while serving to increase the volume of an imperfect yet laborious compilation, would only have "convinced against their will" those who would "remain of the same opinion still." I therefore close the remarks with the expression of a wish that some may be induced to look into this matter, so intimately connected with the calls of humanity, religion, and justice.

B.—III.

WHITES AND HALF-BREDS.

White and Half-breed Inhabitants.—I have thus far spoken only of the aboriginal inhabitants. There are yet two other classes, the whites and the half-breeds; the former mostly Orkney and Scotch settlers, and their descendants at the Red River Settlement, and officers and men who have been or are at present in the fur trade; while the latter are the offspring of the former and Indians, as well as their descendants, and being of all shades, from the almost pure red man to the white, are a motley population. Altogether the white and half-breed population of the interior numbers about 12,000, of which one-half are at Red River. The half-breeds, who constitute by far the greater proportion, being about five to one, are divided into two classes, generally called in the country French and English, the former being descended from French Canadians, and the latter from Scotch and English. Cree is the mother tongue, but almost the whole also speak either Canadian French or English. The occupation of most of these people is hunting and voyaging, the first on their own account, and the latter in the pay of the Hudson's Bay Company or Red River merchants. They are remarkably adapted for either of these employments, but there are very few who make good farmers. The old Scotch settlers and their descendants are the real farmers at the Red River, where the soil being excellent, the only drawback to agriculture is the short and sometimes interrupted duration of hot weather. The half-breeds are naturally intelligent, and are mostly very apt at picking up any handicraft, their principal failing being instability of character.

Military Force.—Should there be occasion for a military force to be kept up in the interior, an efficient corps of mounted troops could be raised at Red River, which, for rapid movements and reconnoitring or outpost duty in a country where the means of subsistence for man and horse have to be drawn from the wilderness, it would be particularly adapted, while it would be difficult to find a class of people more suited to this kind of service than the half-breeds. The raising of such a force on an emergency would be a task of very short duration, as the general fire-arms in use in the country are all of one calibre, and a large store of ammunition, including ready-made bullets, is always on hand.

C.—I.

DEVELOPMENT OF RESOURCES.—MEANS OF COMMUNICATION WITH THE INTERIOR.

Routes to the Interior.—The several lines of internal communication with the more northern parts of the continent of North America being intimately connected with the development of the resources of the country under consideration, I will here enumerate them, commencing with the north. We find a river of the first class, the Mackenzie, flowing into the Arctic Sea; on the west the Columbia's branches carrying the western waters from eleven degrees of latitude of the Rocky Mountains to the Pacific. Again, from the Gulf of Mexico, the navigable waters of the Mississippi and Missouri reach the latitudes of 45° and 48° north, in the very centre of the continent, and the connected chain of the Great Lakes extending one thousand miles west of the Atlantic sea-board, while the north-east is penetrated deeply by the great inland sea of Hudson's Bay. But setting aside the Mackenzie on account of its Arctic situation, and the Columbia, which, although serviceable to the North Pacific States of the American Union, can have but little influence on British territory, there remain four points to which the communication from the civilized world is by water, and which we may call bases of approach to the interior of British North America. They are Hudson's Bay, Lake Superior, the head of the navigation of the Mississippi, and the most northern part of the Missouri. From the first three of these connexion with the interior has been hitherto maintained, and although a large Indian trade has been prosecuted on the Upper Missouri, yet, owing to the absence of any settlements in that region, it has not extended into the British possessions. It is almost needless to say, that external communication by steamboats can be kept up during the entire summer season with the three southernmost of these bases, while the impediments offered by ice to the navigation of Hudson's Straits and Bay precludes the use of that base for more than from six to ten weeks of the latter part of summer and autumn. Thus, although it is principally by means of that route that the fur trade has been pushed to its present extent, yet we can hardly look forward to its being used to a much greater extent in future. We have, therefore, three bases left, which, with their internal and external connexions, are of the greatest importance to the future of the country under consideration. I shall at present, however, only describe the routes as hitherto in use, leaving the considerations with respect to the encouragement of any particular channel for the next section of this report.

Hudson's Bay and Lake Superior Routes.—The ordinary boat route between Hudson's Bay and Lake Winnipeg, and the boats in use on it, has been described (see Appendix I.), and in its present state has been used for many years as the principal outlet of the interior. The other water connexion, usually called the "Canoe Route," has been fully reported on by the Canadian expedition in 1857 and 1858 (see Parliamentary Paper, dated June 1859). This was in frequent use at the time of the competition between the Hudson's Bay and North-west Fur Companies, but from the numerous obstructions precluding the use of any craft but bark canoes over a great portion of it, it has latterly fallen into disuse, except for personal conveyance. The distance from Lake Superior to Lake Winnipeg is 560 miles. I shall have to speak of a modification of this route proposed by the Canadian expedition in its proper place.

Red River and St. Paul Route.—The third means of communication with the civilized world, although not through British territory, yet having been for some years extensively used by British subjects, who carry on by its means a yearly augmenting trade, is entitled to a description here. This is the overland route between Red River and Saint Paul on the Mississippi, and may be said to consist of two regularly frequented trails, although much of the country being of an open character, it is not necessary always to follow these trails. The one by the east is usually called the "wood road," and the other, keeping more on the open prairie to the west of Red River, is called the "Prairie" or "Plain Road." Small parties have usually followed the former, on account of the hostility of the Sioux Indians, who frequent the country more particularly to the west of Red River. Both these trails will be seen marked on map.

The mode of transport employed for merchandise is by means of light oak carts drawn by single horses or oxen (see "Means of Transport," c. iv.), and the country being in a state of nature, the travelling is so rough that the roads are not heavy nor is the progress rapid. The distance, which differs little by either trail, is from Fort Garry to Saint Paul about 530 miles, which distance is accomplished in from three to four weeks, according to the loads and state of the country. It has been usual for a large caravan of traders to leave Red River Settlement from the 1st to the 10th of June annually, and another trip is usually made in the fall of the year.

Besides this land route there is a way of getting by canoe up the Red River, and by a portage out of Otter-tale Lake on to Craw-wing River flowing into the Mississippi. And in bringing the machinery and boiler for a steam mill from the United States in 1856, a "skow" or flat-bottomed boat was constructed on the upper part of Red River, by which it was transported to the settlement. There was, however, this season, a small steamer plying on Red River, which will facilitate the means of transport at the northern end of the route, by providing water carriage for nearly half the entire distance.

I will now pass on to give a sketch of what has been achieved with the means of communication just described, and in commencing I would draw attention to the fur trade.

C.—II.

THE FUR TRADE.

The fur trade commenced on the shores of Hudson's Bay nearly two centuries since, and gradually extended inland; but when the North-west Company pushed their way from Canada into the interior, it gave an impulse to the efforts of the Hudson's Bay Company, and during the competition which lasted till 1821, the country was explored and the trade pushed to great extent. Since the union of

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the two Companies, the trade has been successfully, although more quietly pursued, and notwithstanding that within the last few years the proximity of an American market has induced a number of the inhabitants of the most southern portion of the interior to traffic in furs, thereby raising the prices in that part; yet the trade carried on by the Hudson's Bay Company in other districts has altered but little, save in its extension northward; and as but little is known of the conduct of this peculiar trade, I will give some description of it.

Hudson's Bay Company.—The fur trade as carried on by the Hudson's Bay Company over the whole northern part of the continent, from the Atlantic to the Pacific, is on a most uniform and comprehensive system. The whole territory is divided into five departments, in each of which there is a certain number of established posts. One of these is the dépôt where the goods for the trade are received from England by ships, and thence distributed among the whole.

Departments.	Dépôt.	No. of Posts.
1. Northern	York Factory, Hudson's Bay	69
2. Southern	Moose Factory	42
3. Montreal	Lachine	22
4. Oregon	Fort Vancouver, W.T.	16
5. Western	Victoria, V.I.	15

Making altogether, exclusive of flying posts, 164 regular establishments, of which 16 are on American ground, 37 in Canada, and 14 in the province of Columbia and Vancouver Island. The Indians trading at three places are about 150,000, including young and old.

Pacific Departments.—The two departments in the Pacific are now kept quite distinct from the remainder, there not having been for several years any regular communication kept up across the Rocky Mountains.

Eastern Departments.—Lachine, near Montreal, the residence of the Governor of the territories, forms the head-quarters of all the trade on the east side of the Rocky Mountains, and thither the accounts of the separate departments are transmitted yearly. Of the Montreal department, which carries on the trade in Canada, I know nothing; while of the southern department, having its dépôt at the southern extremity of Hudson's Bay, I know simply that a vessel of about 500 tons sails annually from England to this point, with men, goods, and provisions for the prosecution of the trade, carrying back to England the fur returns. The country in which the trade is prosecuted from thence is generally thickly wooded, and the larger animals not being abundant, many skins are applied for the use of the servants from the northern department, while salt meat and flour are used in place of pemmican.

Northern Department.—The northern part, in which it has been my duty to travel, and which is the country more particularly included in this report, is by far the largest in extent as well as the richest in peltries; and as a knowledge of the internal economy of this will give a general idea of the whole, I shall proceed to describe it.

Supply of the Dépôt.—A ship annually leaves the Thames in the month of June, having a very mixed cargo, including blankets, materials for and articles of wearing apparel of woollen and cotton manufacture, hardware and earthenware, beads, ribbons, pipes, fire-steels and other miscellaneous articles; also tea, coffee, sugar, rice, raisins, wine, tobacco, salt, flour, gunpowder, shot, ball, firearms, &c. While another is usually chartered by the Company for the conveyance of extra supplies, and the property of Red River merchants and the missions. These two vessels, depending on the state of the ice in Hudson's Straits and the Bay, generally arrive at York Factory towards the middle of August. Here the discharging of the cargo by means of schooners (as the ship cannot come within five miles of the fort) is carried on as rapidly as possible, and ballast of stones having been taken in, one ship only is loaded with the packs of furs, skins, and robes, and they usually, if possible, get away by the middle of September, in order to have light nights for the navigation of Hudson's Straits.

Thus is the dépôt for the interior supplied yearly with necessaries for and relieved of the returns of the Indian trade; but to provide against the consequences of any unforeseen accident preventing the arrival of the ships, there is always a twelvemonth's extra supply on hand there.

Economy of the Interior.—The economy of the interior is really nothing more than the general system carried out in particulars.

This department is divided into ten districts, each of which is under the superintendence of a chief factor or chief trader, as the case may be, who, as in any military system, is responsible for his whole district, taking care that the work is carried on properly by clerks or postmasters in charge of the several establishments. He has, if the district be large, one clerk employed as an accountant, whose duty it is to collect and arrange the returns and accounts of the different forts.

The persons in the employment of the Hudson's Bay Company are a mixture of Europeans and half-breeds, those for the higher grades entering the former as apprentice clerks, and the latter usually as apprentice postmasters, but each have the chance of rising to the office of chief clerk, which is the highest grade to which a regular salary is attached, and from thence obtaining a commission, on which he becomes a partner in the fur trade, first as chief trader, on a certain percentage, and afterwards as chief factor with a higher share, and after serving a certain number of years, a retiring pension is allowed him.

All promotions and appointments, as well as the general arrangement for the prosecution of the trade, are under the control of a council of commissioned gentlemen collected from different districts, who meet every summer at Norway House, at the north end of Lake Winnipeg; headed by the Governor of the territories, who makes a long voyage annually from Montreal for that purpose. A standing account is kept up between the "fur trade" and the "shareholders" of the Hudson's

Bay Company, and a regular yearly balance struck, out of which the several proportions are allotted.

Summer Voyaging.—The brigades belonging to the several districts being on their way to the dépôt at the time of the council just described, the officers in charge proceed with them, and discharge their boats of packs of furs, the proceeds of the previous year's trade. Here the voyagers are paid their wages in supplies of any kind which the dépôt affords, taking advances on account of the next year's wages.

According to a demand (so far as allowed by council) made out the preceding winter, the supplies for the different districts are given to those in charge, who as soon as everything is prepared start with their boats on the return voyage to the interior, arriving at their winter quarters at different times in the fall of the year, according to the distance, which in most cases amounts to many hundred miles. The return of the voyagers to their wives and families, and the initiation of the "green hands" into the realities of Indian life, afford an opportunity for a slight festivity, and each man is served with a "regale" of liquor.

Wintering.—The work of preparation for winter now goes on; "fall fisheries" are established, each party is despatched to its wintering post with a supply of goods for the trade, the fort is put in repair, houses "muddled" (pointed), and other work got through; while the Indians, who have collected in expectation of the arrival of the boats, are furnished with numerous supplies for the coming winter, on account of the furs they will probably bring in in the spring. By the time all this is over winter sets in rapidly, the lakes and rivers close with ice, snow covers the ground, and the ordinary winter occupations of the inmates of the forts, such as boat-building, hauling fire and building wood, fetching provisions with dog trains. Making pemmican, sorting furs, and occasional trading with Indians are taken up and continued with little intermission, save a dinner at Christmas, a dance on the coming-in of the new year, and the passing of the ordinary "winter packet," or express, bringing letters perhaps a year old, and taking away others which have been in course of concoction for two or three months, and again all is quiet until the welcome arrival of the "first goose."

Spring.—All is now activity, and successful hunters make alike returns of the chase pay well for the expenditure of ammunition. Then the river opens, the furs are pressed and bound in packs properly marked, and on the arrival of the boats from "up river," their numbers are augmented, and bidding adieu to their wives and families, the voyagers and gentlemen, with the exception of a few who remain "inland," start on their summer voyage of perhaps half a year's duration.

Hudson's Bay Company Service.—Such is the ordinary yearly life of those engaged in this peculiar trade, and when it is considered that the trading establishments scattered over their extensive region are in the same relative proportion as if in Great Britain, there was one at London, another at Plymouth, another at Liverpool, and the fourth at Edinburgh, with no roads connecting them, and that many of these so-called forts consist of one or two log houses, where a single European is located with two or three half-breeds only, on whom he has to depend for assistance in case of the natives becoming troublesome, I shall be believed when I say that in this service are to be found men of the greatest self-reliance, who are at any time ready to face almost insurmountable difficulties; many there are who have been reduced to the greatest straits for means of subsistence; others again have been exposed to numerous dangers by land and water, and yet there are few who when they return to civilized life do not wish themselves back in the dreary north.

The North.—There are some exceptions to the general statement which I made with regard to the boats of each district going to the dépôt.

This is not the case with either the Athabasca or Mackenzie River brigades, the former of which only comes to Norway House, where they find their supplies, while that from Mackenzie River and the far north is met at "Portage la Loche" by a brigade specially employed, with whom they exchange cargoes at this nine mile portage.

Traffic.—At Red River the trade is carried on by money, paper and coin; an Indian or half-breed bringing in fur is paid in cash for it, and he uses this cash in the purchase of goods. In other parts it is direct barter, article for article, or, as is much the same thing, the furs and goods are reckoned at so many "made beaver" or "skins," and the goods are priced by the same unit of value, which exists only in imagination. Spirit is kept up in the trade, first, by the officers being partners, and secondly, by a system of competition fostered by the returns of the several districts, priced according to a fixed tariff (not necessarily the home prices), being annually laid before the council, and from which the members often judge of the capabilities of a man by seeing whether or not he has made a "good trade."

Furs.—I need not here enter into the details of the fur trade, suffice it to say, that the goods allowed the Indians for the furs are in proportion to the European prices, and it is not a fact, as has been stated, that higher payment is given for those less valuable, in order to preserve others. The Indians being very indolent, are, I think, generally fairly paid for their produce. The furs in greatest demand are the marten or sable, fisher, mink, otter, beaver, musk-rat, bear, lynx, badger, ermine, wolf, and fox, of which the variety called black or silver fox will sell sometimes in this country for 50*l.* per skin. There is, moreover, a considerable trade now carried on in buffalo robes, besides which goose quills, isinglass, castorum, and oil are imported into England. Most of the "robes" go to the American market, but there is annually a sale of furs in London, in which the greater part are brought up by continual dealers.

Competition.—I have mentioned before that although the Hudson's Bay Company have nominally the exclusive trade of all the country drained by the rivers running into Hudson's Bay, yet there is a certain amount of opposition in that part bordering on the state of Minnesota, caused by American traders having pushed up there from the Mississippi. This is carried further into the country by

half-breeds, who, from being natives, claim the right of trade, and during winter make trips to or live in certain parts of the country near Lake Winnipeg and the Saskatchewan, and there trade with the Indians, using a great deal of bad spirits obtained from the United States. These people take their furs to Red River Settlement; but owing to the Hudson's Bay Company allowing as much as the American and other merchants, and within a little of the prices at Saint Paul, distant over 500 miles, the greater part fall into their hands, although, of course, there is not so much profit on them as if obtained direct from the Indians.

This competition, although it obtains higher prices for the Indians, does not benefit them, for it introduces spirits, the temptation of which they cannot withstand. But were the Indian liquor traffic prohibited, as it ought to be, then competition would be a present benefit to the Indians by allowing them higher prices, and a future benefit by destroying the fur trade of the southern portion of the country; as until this is accomplished little progress will be made in agriculture by them, or by the large majority of the half-breeds.

Provisions.—The supply of provisions required for the greater part of the voyaging by summer and winter travelling in connexion with the fur trade is mostly drawn from the buffalo; pemmican or dried meat being the usual food on such occasions for all the southern part of the country. But in the district of Mackenzie's River the numerous deer and other animals furnish their contributions towards the support of man, so that it is erroneous to suppose that the trade could not be carried on in the north without buffalo.

In the buffalo country fish is little used, but in the woody districts it constitutes, together with potatoes, grown at some posts, the staple article of food. Flour, which is supplied from England and Red River Settlement, is not much used in the upper parts of the country, on account of its cost of transport. At many forts the inmates would live far better than they now do, did they cultivate the soil to a greater extent; but they are usually of so indolent a nature that rather than employ spare time in that way they go without those things which are looked upon as necessities in a civilized country. Thus, with the exception of Red River, where many live by it, agriculture is almost unknown. In the more northern and eastern parts of the country of course it is impossible.

In describing the fur trade, I think I may say that I have included all the resources of the country that have as yet been developed, with the exception of what has been done at Red River in the way of farming; so that I will endeavour to give some idea of the state of that settlement as it now is, omitting the numerous struggles of the early settlers in contending with the many natural and other obstacles.

C.—III.

RED RIVER SETTLEMENT.

Origin.—Those interested in the rise and progress of this distant colony have but to peruse a most complete history of it by the late Alexander Ross, entitled "Red River Settlement." I shall here simply state that the idea originated with the Earl of Selkirk, who, obtaining a tract of territory from the Hudson's Bay Company in 1811, sent out the original Scotch settlers, and entered into treaty with the Indians of Red River.

Among the difficulties with which the settlers have had to contend, I may mention the visitation of grasshoppers in certain years, inundations caused by the rise of the river, the difficulty of procuring stock and implements, and the want of a market. But notwithstanding these and other disadvantages, including climate, under which the inhabitants have laboured, there at present exists at Red River a thriving British community of whites and half-breeds, numbering about 6,500 souls, separated from the most advanced point of civilization by 400 miles of wilderness.

Present State.—Red River Settlement is neither a city, town, or even a village, but, as the name indicates, a settlement consisting of a straggling chain of small farm establishments, extending for a distance of forty miles along the banks, but mostly on the west bank of the Red River of the north, the dwellings being from fifty yards to a mile apart; while at intervals along this line are a few churches and windmills, besides two establishments of the Hudson's Bay Company, built in the form of forts, one at the junction of the Assiniboine with the main river, and the other twenty miles below. On the north bank of the Assiniboine also, which has a general east course, the settlement extends about 25 miles up, and about 50 miles further is another small collection of homesteads, usually called "the Portage."

Population.—From the latest census (1856) it appears that there were then 1,082 families, of which 816 were natives of the country, the remainder belonging to the United Kingdom and Canada. The French Canadians and their offspring, usually called "French half-breeds," who number about one-half of the whole population, are confined mostly to the Assiniboine and Red River above "the Forks," the Europeans and their descendants, pure and mixed, being located between the two forts, and a couple of miles below the lower one; while the so-called Christian Indians, numbering about 400 or 500 souls, are confined to the lower part of the river, usually designated the "Indian Settlement."

Religion and Occupations.—The settlement is divided into parishes, and there are nine churches and seventeen schools; the French part of the population being generally Roman Catholics, while the English and Indians are Episcopalians and Presbyterians. Not one-half of the population are farmers, for there are but 400 barns for the 900 houses, accommodating above 1,000 families, the remainder being hunters, who may be said to live entirely on the buffalo and the fur trade. These are, for the most part, French Canadian half-breeds, whose occupations are well exemplified in the small number of farms existing in the parishes which they inhabit, for while the population is equal, there are but ninety barns compared to the 230 in the remaining parishes.

Land and Productions.—The country is very level, and on the west generally open. There is a considerable amount of swamp, but in the dry parts the soil is well adapted for the growth of cereal and other crops, and naturally supports a rich growth of the different grasses. The trees are generally small, but there is fine oak and elm along the borders of the river, and timber suitable for building purposes to the north-east of the settlement. Firewood, of which large quantities are required during the severe and lengthened winter, has now to be "hauled" a considerable distance, or "rafted" down the rivers. Good limestone for building exists. Wild land is sold by the Hudson's Bay Company, in lots with from two to four chains' river frontage, at seven shillings and sixpence per acre.

Government.—There is a Governor of the Settlement, styled "Governor of Assiniboya," appointed by the Hudson's Bay Company, who is assisted by a council composed of influential inhabitants, holding their commissions also from the Hudson's Bay Company. Quarterly, general, and petty local courts are held, in which trial by jury is recognized. Public works, such as bridges, and what little road manufacture is done, are paid out of the revenue arising from duties levied on certain imports, fines, &c.

Trade and Occupation of Inhabitants.—There can be said to be no distinct trades practised at Red River, every man being his own carpenter, smith, mason, &c., and the women taking the clothing department. There are a number of wind flour mills, but all the millers have other occupations; but there is one steam mill imported from the United States, which is kept pretty continually in operation, at any rate during winter.

Whiskey is manufactured; leather is roughly tanned, but, as with the making of beer, simply for home use. Sugar is made from the maple, and salt, as has been before mentioned, is manufactured on Manitoba Lake, but not at present in sufficient quantity for the supply of the country. The buffalo hunters and voyagers are absent from the Settlement most of the summer, and owing to their improvidence are often reduced to great straits from the want of provisions during winter.

Agriculture.—Farming cannot be said to be carried on to a great extent, when the whole number of stock is only, cattle 9,600, sheep 2,200, and pigs 5,000, and the amount of land under cultivation is 8,800 acres. The agricultural implements not constructed at the settlement are mostly obtained from Saint Paul on the Mississippi, and a few reaping machines have been already introduced.

Farming operations comprehend the growth of wheat, barley, oats, Indian corn, and potatoes, the manufacture of cheese and butter, and the keeping of cows, horses, pigs, and sheep, besides gardening operations for the culture of turnips, onions, peas, cabbage, rhubarb, radishes, mangle carrots, hops, pumpkins, and melons, which all appear to thrive in ordinary seasons. The periodical visits of immense swarms of grasshoppers, who eat down every green thing, is a source of great annoyance to the farmers of Red River, as well as in some parts of the state of Minnesota.

Growth of Crops.—First, in respect to the growth of wheat, the soil seems particularly well adapted, but owing to the climate it is occasionally caught by the early frosts. Large returns are obtained from new land, sometimes up to 40 bushels per acre, and the soil will bear cropping for many years in succession. Barley and oats do well, and are never damaged by the frost; but Indian corn is sometimes destroyed. The green crops flourish; potatoes, turnips, and onions attaining very large size. Melons are said to come to maturity in the open air.

Stock Farming.—In regard to stock farming, the greatest drawback is the length of winter, owing to which so much hay is required for the subsistence of the animals; the usual allowance being five loads per ox and 10 per horse for the winter months, but the former feeds also on straw. The hay is cut off the swamps, where it is met with of tolerable quality, in great abundance; but for this as for other farming operations there is always a great scarcity of labourers, on account of the absence of the hunters and voyagers from the settlement during summer, as well as from the natural dislike of the natives to any steady employment.

Sheep thrive well at Red River, where there are but few wolves, owing to there being a head money. Pigs do remarkably well, and if turned out where there are oak woods require no looking after.

The cattle during summer roam at large at the back of the cultivated land, where they find plenty of excellent pasturage, but owing to the annoyance caused by the "bully dogs," mosquitoes, and other flies, they generally during summer collect in the smoke of smouldering fires which are made for their protection, but in the fall wander off and are often not seen for weeks. The cows are milked regularly twice a day.

It is usual at Red River to keep the cattle housed and fed during winter, but as cattle sometimes on the Saskatchewan remain out all the winter in the same way as horses, I think, in the event of stock farming being carried on to any extent, herds of cattle might be wintered out in sheltered situations, with the assistance of a little hay, which would be cut in the previous summer off the swamps in the tract of country where it was proposed to winter the cattle; and the animals would be kept grazing in other parts until the severe part of the winter; and whilst speaking of stock farming, my opinion is, that the country to which I am now calling attention is not ill adapted for it; while the natives would be more inclined to take to a pastoral than an agricultural life. As it is as present at Red River, many cattle and horses are lost every winter from the people not laying in a sufficient stock of hay.

The Hudson's Bay Company now farm to a considerable extent, and since the arrival of a Company of Rifles in 1857 have imported a number of oxen from Minnesota.

Farming Operations.—The commencement of farming operations depends altogether on the progress of the season, but it is seldom that wheat sowing is commenced before May, and it is usually cut before the end of August. The cutting of hay on public land is not allowed by law to be commenced before the 20th July, so that every one may have an equal chance.

Growth of Vegetables in other Parts.—So much for agriculture at Red River, but as a little farming and gardening is done at some of the forts and mission stations, I insert the following information,

which may be of use in comparing one part of the country with another; I will premise that the potatoe disease is unknown.

Barley and wheat thrive on any part of the Saskatchewan, but the latter sometimes does not ripen if grown in low situations. All the ordinary vegetables of a temperate climate come to perfection on the Saskatchewan, potatoes and turnips growing to a very large size.

At the north end of Lake Winnipeg, barley, potatoes, onions, carrots, turnips, peas, and pumpkins flourish in the open air, and melons can be forced. At York Factory white turnips grow, but not of large size.

At Churchill on Hudson's Bay potatoes have been tried, but they grew no larger than musket balls.

On Holy Lake, latitude 55° N., long. 95°, potatoes do not always attain full size. Much, however, depends on the situation, for at Norway House those planted near the woods have been frost-bitten, while others in open ground were not.

Barley is grown as far north as Fort Simpson on Mackenzie River, latitude 62°, but this is owing to its westerly situation giving it such a high summer temperature. (See Climate, Section A.)

It is Sir John Richardson's opinion that the cultivation of grain could be carried out sufficiently to support settlement as far north as Peace River.

Exports.—With the exception of furs, the exports from Red River amount to very little.

A small amount of beef, pork, flour, butter, and cheese being supplied to the Hudson's Bay Company, cattle and horses have been exported to the United States, but latterly the former have been imported.

Imports.—Besides the large quantity of merchandise annually imported from England by way of Hudson's Bay, a considerable traffic has during the last few years sprung up with Saint Paul on the Mississippi, and besides dry goods, hardware, agricultural implements, groceries, ammunition, &c., a large quantity of whiskey is annually brought into the settlement, both for the Indians' trade and home consumption; and I have not yet heard that any steps have been taken to require all engaged in selling spirituous liquors to be provided with a licence. Horses and cattle for the improvement of the breed have been imported from England as well as from the United States, whence the first stock was procured by the early settlers.

Mail Service.—A bi-monthly postal service is kept up the whole year by the United States, between the Mississippi and a small settlement of fur traders and half-breeds near the 49th parallel, with which a connexion is kept up from the Red River Settlement, so that letters can be received from England within the month, but the usual term is six weeks. Another mail route was opened during the summer of 1858, between Canada and Red River Settlement, and was kept up during most of the following winter, and is, I believe, again in operation; but owing to the very great distance through unsettled country, the delay to letters going by this route is so great that few are sent by it.

There is no regular internal mail, but the Hudson's Bay Company forward letters and small parcels by their brigades of boats and winter express to their different ports and the mission stations free of charge.

American Settlements near the Boundary.—It is supposed by many that there is a considerable American settlement and military post near the international boundary on Red River; this, however, is not the case, there being only about a dozen loghouses where Red River crosses the boundary, occupied by traders and half-breeds, while the settlement of Saint Joseph, commonly called "Penibina Mountain," about thirty miles to the west, contains about one thousand half-breeds and Indians, the chief occupations of whom is the chase.

C.—IV.

MEANS OF TRANSPORT.

Water Transport.—The craft in general use throughout the country are canoes and boats, the latter as described (Appendix I.), while the former are made of birch bark from 12 to 28 feet in length, the largest carrying 2,300 lbs. of cargo, worked by eight men, and capable of being carried when empty by two. Canoes of larger size are, however, used on Lake Superior, but are not adapted for the more intricate navigation of the interior.

With the exception of the route between Lake Superior and Rainy Lake, the 30 feet keel boats are in general used for the transport of merchandise, and have many advantages over canoes, where the portages are not over long or the navigation very intricate. Canoes made out of solid timber, usually called "dug outs," are in use at Red River, being very handy as crossing boats, for they require no care. Canoes formed of the hides of buffalo are also used on the Saskatchewan for descending the stream loaded with provisions or robes, and being easily constructed of the materials always at hand, are often used in crossing rivers when travelling. A canoe of this sort, made from buffalo skins and managed by two men, will contain about 2,100 lbs. or one-fourth of the cargo put in a boat when going down the stream. Flat-bottomed "skows," made of rough plank and caulked with Indian leather and grease, are also used for descending rivers with large canoes.

The cost of boat transport, including portages, is on an average one halfpenny per 100 lbs. per mile, or one shilling per diem.

Land Transport—Carts.—The land transport throughout the whole of the Red River and Saskatchewan country is performed during the summer season by light carts of home manufacture, drawn by single horses or oxen, the load drawn by the former being usually 600 lbs. for a long trip, and the latter, which is harnessed by means of a collar (something like a horse collar put on upside down), hauls about 900 lbs. The rate of travelling with loaded carts, including stoppages, is from 20 to 25

miles a day, and when following a beaten trail there is usually but one man to every three carts. The animals are without shoes, and live entirely on the pasture found by the way. The Red River carts, in the manufacture of which no iron is used, are certainly well-adapted for the mode of travelling in use, being easily "man-handled" at creeks, bogs, or other difficult places, and being constructed entirely of wood and with little extra boarding about them, they float well and offer little resistance to the current in crossing rivers; besides which, the wheels are useful for the formation of "skows" in which to ferry over the baggage; but at the same time carts are in rough travelling very severe on the animals, as every jolt of the wheels is communicated to them, and there is in addition always a weight on the backs, frequently the source of sore backs. The cost of this travelling is, perhaps, a little more than by water.

Waggons.—The Red River people have a great objection to waggons, owing, I fancy, to a dislike of the American waggons in use in Minnesota, which are of that narrow wheeled and neatly finished kind in very general use in the North-western States, which is ill-adapted to travelling in a rough country, where swamps are numerous and iron and smiths unknown; but, perhaps, more particularly because they have always used carts.

It being generally admitted that two oxen hauling by the yoke will do twice as much work than if working separately, I would recommend the construction at Red River of waggons made on the same principle as the carts, having perhaps but one or two pins of iron in their construction, the wheels of which should be high and rather broad in the felloes, which would enable them to surmount obstacles and pass over soft places with tolerable ease. The only drawback that I can see to the use of waggons, causing a considerable diminution in the expenditure of horse and ox flesh, is, that more men would be required to extricate a waggon than a cart in difficulty; but then it must be borne in mind that in a train of waggons the drivers would not be so far separated as at present, and the help applied to one waggon would be equivalent to that applied to four carts.

Travails.—The use of "travails," both horse and dog, is general among the Prairie Indians, and consists in the animal having to drag a load, supported on two poles, the larger ends of which trail on the ground behind, while the others cross over the back, and are made fast to a rough pad and breast strap.

Sleds.—In winter sleds are used; those for beaten tracks with horses or oxen being formed with runners, while those for dog travelling and single horses away from civilization are what are termed "flat sleds." The loads are about the same as for carts.

D.—I.

FUTURE GOVERNMENT AND COLONIZATION.

The Interior.—Having in the foregoing pages attempted a general description of the nature of the country, inhabitants, natural productions, climate, and state of civilization of the interior of British North America, I shall now proceed to offer a few suggestions having reference to the future government of that territory, founded on some knowledge of the wishes of the present inhabitants, as well as with a view to the strengthening of British power and the advancement of Christianity and civilization.

Present State.—The whole interior, which has been before defined, is virtually under the government of the Honourable Hudson's Bay Company. But since the expiration of the licence in May 1859, the part now in their hands (and for anything yet proved to the contrary, the property of this Company by Royal Charter) is that portion of which the waters run into Hudson's Bay, known as "Rupert's Land."

I have previously shown that there exists in the heart of this territory a community who, mostly British and their descendants, claim to be called by the name of the mother country; and that, moreover, scattered through the length and breadth of this extensive tract is a race of human beings, the rightful owners of the soil, who, though changed in many respects since white men went among them, are still uncivilized; these, although they cannot claim to be called by the name of Englishmen, yet having been so long associated with us may reasonably expect our sympathy if not support. These inhabitants of a portion of the British dominions are entitled to be placed by the British nation on an equality with their neighbours inhabiting the territory of the United States; and although perhaps the destiny of the aboriginal race "may be seen in the setting sun," yet it is against the laws of humanity to offer any obstacle to the progress of civilization.

Union of British North American Provinces.—Much has been talked about, but perhaps less really thought of, the union of the British North American Provinces, a scheme which, although in the present age, might be thought somewhat speculative, may yet not only be projected but accomplished. But it must be a work of time, and such time as many may become impatient, even in contemplating. Before a union can take place a connexion must be made, and in making this connexion each link has to be bound to its adjoining one, and new links supplied where required.

Connexion with the United States.—I have before pointed out that the means of communication between the country under consideration and the civilized world are of very indifferent descriptions, and that in the present state of those communications it is more nearly connected with the United States than either England or her provinces. This connexion, which is year by year increasing, will, if some steps are not taken for the opening of a practicable route with Canada, monopolize the whole traffic of the interior, and thus drawing those strong ties of commerce and mutual interests gradually tighter, may yet cost England a province, and offer an impassable barrier to the contemplated connexion of her Atlantic and Pacific Colonies.

I would not at present undertake to say, that if the offer were made by a neighbouring power of protection, the inhabitants of Red River Settlement would cease to own allegiance to England; but

I do believe that in a few years' time, should the present form of government continue, which, although by no means oppressive, yet it must be owned is not exactly devoted to the interests of civilization, such a demonstration would be by no means improbable; and as to the possibility, there is at present no power to prevent it.

First Step required.—The first great step required towards opening up the interior and connecting it with the eastern provinces is the formation of a mode of communication between Lake Superior and Red River Settlement, which, in giving facilities to a trade with Canada in British manufactures, would create a place of importance on Lake Superior, and the formation of small settlements along the route, besides guiding the set of western emigration through British soil. The water routes connecting Lakes Superior and Winnipeg have been examined and fully reported upon by competent persons, who have given it as their opinion that no continuous water communication can be established, but have proposed a scheme of a partly water and partly land route from Fort William on Thunder Bay to Red River Settlement, which to my mind, taking into consideration the very large expenditure required to carry out this, at best, interrupted communication, appears far from being one suited to the requirements of the case. The details of this scheme are to be found in the Parliamentary papers which I have on several occasions referred to, dated June 1859. On this a Company was formed in Canada, under the name of the "North-west Transportation and Land Company," the object of which was to open this route and trade with the interior; but the stock failing to be taken up in England, little has been heard of it of late. Such an undertaking is one of the few which are rather the work of Government than private companies, who could not expect remuneration for the outlay in any reasonable time.

Proposed Land Route.—At present we know little or nothing of the district of country between Lake Superior and the Lake of the Woods, except just along the "canoe route;" but my opinion long since expressed (see Appendix I.) is, that a land route is required from a harbour on the north shore of Lake Superior passing the north end of the Lake of the Woods to Red River Settlement. And the reason I say north shore is, because if any port could there be found, such as Nipigon Bay (if it should prove available), it would, besides being as near the north end of the Lake of the Woods (the southern part of which lake is in American territory), as Fort William, be on the line of an ultimate land route to the present settled parts of Canada. This would necessitate the formation of about five hundred miles of road, through probably a difficult country. But in using the word road, I do not wish it to be understood that a regular stage road is required to be constructed, for it would in the first instance be little more than cutting away the trees wide enough for a track, the partial levelling of some of the roughest places, the formation of causeways over impassable swamps, and the rough bridging or forming slopes into the smaller creeks; while the larger rivers would be left for crossing by means of boats or flying bridges, which would be established by settlers, who might be encouraged to settle along the road, by the restriction of free grants of land to that portion of the country.

The general direction of this road could most easily be laid out by one accustomed to travelling during winter, while its cutting out might be commenced the following spring. The winter trail would naturally deviate from the summer road, for the purpose of keeping on the lakes and swamps where the travelling is level, but still it would in most parts follow the cut road; and if settlers, as has been before observed, were induced to locate along the line, they would, by cutting hay off the numerous swamps during summer, be able to supply the wants of passing travellers during winter; this would, I doubt not, cause the route to be much used during that season, when the bogs, rivers, and lakes are frozen. Another reason in favour of this route is that it would be on the line of, and consequently aid considerably, in the construction of a railroad, besides being well removed from the international boundary.

This then is the first great step required, and when we see with what rapid strides settlement, and consequently civilization, is extending to the west and north-west from the upper waters of the Mississippi, whence a navigable river flows into British territory.

I cannot but think that the above proposed undertaking is of national importance, and would, therefore, press it on the attention of Her Majesty's Government.

Indian Policy.—With respect to the government of the interior it is hardly my place to offer suggestions; but in the event of any change being made in the present state of things, the interests of all the parties concerned should be kept in remembrance; and while in regard to the colonist there is previous experience for a guide, we have no precedent as to the Indian. I have for that reason paid particular attention to the policy of the United States in regard to the aborigines, and after having well weighed and considered both sides of the question, I have been led to the conclusion that they should be taken under the special care of the Government; and that while provision is made for them by the reservation of a certain proportion of the proceeds resulting from the sale of Crown or rather Indian lands, that also in the framing of the laws and statutes of a new colony, particular attention should be paid to the appropriation of Indian reserves, the prevention of whites "buying out" Indians, and the prohibition of the liquor traffic.

Out of the "Indian fund" above proposed an Indian Commissioner and staff would be paid, who in attending to the interests of the Indians would have the management of the "Indian agricultural settlements" and schools mentioned in a former part of this report, the expenses of which, as well as everything connected with the Indians, would be defrayed by the fund. I should not, however, advocate the system of licences for the Indian trade, for the half-breeds being natives, could not be compelled to have licences, and the expense would only ultimately fall on the Indian, who would not get his goods so cheaply as if there were free trade.

Military Police.—It would, moreover, be necessary for the maintenance of law and order, the suppression of the liquor traffic, and the preservation of peace with and among the Indian tribes, to establish a provincial military police, somewhat on the system of the Irish constabulary; such a body would, moreover, serve as the nucleus on which to build should circumstances require, and it might be easily raised from among the present population.

International Boundary.—It would be advisable that at an early date the boundary should be run westward from the Lake of the Woods, where the Commissioners under the treaty of Utrecht terminated their labours in 1825; and from the nature of the country, this might readily be done by a small party, American and British, in a short time, and at little expense. The marking of it on the prairie far away from all settlements, or the chance of any for some time to come, could be easily accomplished by the erection of mounds or cairns at certain intervals in prominent positions. This is at present rather important in the region of Red River, for the position of the boundary having only been determined by passing travellers with the aid of ordinary sextants, is not known within a quarter of a mile; and this being only 75 miles from the centre of the British settlement on Red River, while Americans are pushing down this valley, should any revenue or other establishment be located on the wrong side of the line by either country, it might hereafter prove the source of some difficulty. Again, in the country of the Blackfoot Indians, towards the Rocky Mountains, some of the waters of the Missouri certainly come from British ground; and as treaties are now being formed with these Indians by the United States for the sale of their lands the boundary should be known in that part. The locality of the boundary has been determined in the mountains, and at their bases on either side (see Appendix II.), where I have drawn attention to the peculiar configuration of the mountains at that part, but the forty-ninth parallel is in no way marked. At any rate the determination of the boundary in the immediate neighbourhood of Red River should be attended to without delay.

Future Settlement.—Concerning the capabilities of the soil and climate for the purpose of agriculture, I have refrained from making general statements which might lead to erroneous conclusions, but have confined myself to speaking of those portions of which I have personal knowledge, or concerning which reliable evidence is to be obtained. From the information I have gleaned, I think that the first fresh settlement formed will be in the region of Manitoba and Winipegosis Lakes and the Upper Assiniboine River; and that as immigration increases, settlements will reach the Saskatchewan about its forks, and thence up the north branch, Battle and Red Deer Rivers, where timber is comparatively not so scarce as in the more southern part of the country; and doubtless, in time to come, a considerable business will be carried on in bringing timber down the Saskatchewan from the Rocky Mountains. My reason for mentioning the country about the lakes and Upper Assiniboine is, because all those who have visited this district report that the greater portion is well adapted for settlement, the soil very fertile, and the climate probably differs little from that of Red River; and in regard to the means of communication, the bordering lakes would offer considerable facilities, as it appears that steamers of light draught might run from Red River Settlement to Lake Winipeg through the Little Saskatchewan to Lake Manitoba, and thence to the Water-hen River into Winipegosis Lake.

This is one route which has been proposed to the Saskatchewan, the distance across the Mossy Portage, marked on map between the last-named lake and Cedar Lake, through which the Saskatchewan flows, being only four miles; but I should much doubt whether this circuitous line of communication with the Upper Saskatchewan would hold its own against the direct land transport through the plain country.

I have said that agricultural settlements are likely to flourish about the forks of the Saskatchewan, and thence to extend westward rather than south-west. My reason for this statement is, that the original prairie land, wherever I have seen it, is, as well as being destitute of wood, also wanting in good soil. For whether of a sandy, clayey, or gravelly subsoil, there is seldom more than a couple of inches of vegetable mould, and the southern part of the Saskatchewan country is generally speaking of this nature, which tract stretching southward beyond the Missouri, has in parts not inaptly been termed "desert." It must not, however, be inferred from this that all prairie land is sterile, for there are immense prairies in the valley of the Mississippi, which extend up to Lake Winipeg, and account for the great fertility of the Red River Valley, which are quite of a different character, and are now called "arable prairie," in contra-distinction to the "dry upland, or rolling prairie;" while around the northern limit of the original prairie, and between it and the wooded district, is a belt of greater or lesser width, which having once been woods, has been cleared by the extension of the frequent prairie fires, and is now a comparatively open country, having a fine black vegetable soil; such is the region about the forks of the Saskatchewan, and much of the country to the north and west, while that bordering on the lower part of the Saskatchewan is so little elevated above the lakes and rivers, that although a great resort for waterfowl, it must for ages remain in its present state.

Benefit to the Interior from a Communication with the Civilized World.—But to speak of the interior generally, and the benefit it would derive from the improvement of the means of communication with the civilized world; it cannot but be supposed that many of those enterprising individuals in Canada and the Lower Provinces so impressed with the idea of "going west" would, if the means were at hand, rather make for the somewhat rigorous though healthy climate of the northern prairies, where they would still be under the government to which they have been accustomed, than, as they now do, migrate to the Mississippi States. Thus would a class of hardy and striving people be introduced among the somewhat indolent yet most capable population of the interior, while others, tempted by the offer of free grants along the line of land road between Lake Superior and Red River, in settling would supply some of the required links in the chain of civilization. Again, the half-breeds being a class brought up from their youth to voyaging by land and water, would abundantly supply that, in a country of such extent, much needed element, while many unsuited

to the steady work of an agricultural life would find employment as stock-keepers, lumberers, and such like.

The Passes of the Rocky Mountains.—In anticipation of the establishment of a continuous route through British North America, it is proper here to refer to the passes of the Rocky Mountains north of latitude 49°, or, in other words, in British territory. There are many points at which the chain of these mountains can be traversed, but omitting for the present that known as "Peel's Northern River Pass" within the Arctic circle; that from Fraser's Lake to Pelly Banks, at the head waters of the Yonkon in latitude 62°, as well as one from Dease's House to Stickeen, and others only known to the hardy fur traders of the far north, we come to three, one of which crosses from the Findlay branch of Peace River to Babine River, the northern boundary of the province of Columbia; while the other two, at the very head waters of Peace River in latitude 55° north, connect with Fraser's River at its most northern bend, one of which was described as long ago as 1793 by that intrepid traveller Sir Alexander Mackenzie.

Passes to British Columbia.—The connexion with these being, however, by water, and rather far north on the east side, I shall pass on to enumerate the known passes more to the southward, and which may be called the Passes to British Columbia. In commencing with the north they stand thus:—

1. Cow Dung Lake Portage, or "Leather Pass,"	latitude 54° 0'
2. Boat Encampment on original Athabasca Portage	53° 0'
3. Howse's Pass	51° 45'
4. Kicking Horse Pass	51° 25'
5. Vermillion Pass	51° 10'
6. Kananaski or Emigrant Pass	50° 40'
7. Crow Nest Pass	49° 40'
8. Kootonay Pass	49° 25'

1. The first of these connects the head waters of the Athabasca River with the great fork of the Fraser, and has never been used except as a "portage" between these two rivers.

2. The second is that which until the last few years was used regularly by the Hudson's Bay Company for the conveyance of a few furs, as well as despatches and servants, from the east side to the Pacific by way of the Columbia River, and from the "Boat Encampment" is navigable for small craft; but this pass, like the first, has not been used in connexion with any land route on the west side.

3. The third was probably first used by either Thompson or Howse (author of the "Cree Grammar"), who, following up the north branch of the Saskatchewan crossed the watershed of the mountains to the north fork of the Columbia, and thence to its source, the Columbia Lakes, where striking the Kootonay River, he followed it down to the south of 49° north.

4. The "Kicking Horse Pass," so named by Dr. Hector, crosses the watershed from near the head waters of Bow River to those of the Kootonay, and may be reached by following up either the north or south branches of the Saskatchewan by land.

5. While another (see Parliamentary Papers, June 1859), the "Vermillion Pass," also traversed and laid down by Dr. Hector during the summer of 1858, occurs also on Bow River, so near the last named one that it is unfortunate that the western edge of the mountains was not reached as it would then have been proved whether these passes can be of value in connexion with a continuous route across the country.

6. The next pass which enters the mountains in common with the fifth on Bow River has been named the "Kananaski Pass" (see Parliamentary Papers, June 1859), and was laid down by latitude and longitude observations during the summer of 1858 by Captain Palliser. This also leads to the Kootonay River, passing near the Columbia Lakes. It is generally supposed that this pass was only discovered last year, but a description of it is to be found in "An Overland Journey round the World," by Sir George Simpson, who, together with a party of emigrants about 50 in number, under the late Mr. James Sinclair, passed through, but not with carts as has been stated (see Evidence before the Select Committee, Hudson's Bay Question), to the lower part of the Columbia in 1841, besides which, it has been used by other travellers. If we are to consider its western extremity to the south of the Columbia Lakes, it is a long and indirect pass, but as yet it has only been used for following the valley of the Kootonay, and thence into American territory. In the event of the country west of the Columbia Lakes proving suitable to a land road, this as well as the previous three would prove available for crossing from the Saskatchewan north of latitude 51°.

For one hundred geographical miles of the mountains south of Bow River no pass is at present known to exist until we come to Mocowans or Belly River, a tributary of the South Saskatchewan, on the branches of which four passes enter the mountains, the "Crow Nest," the "Kootonay," the "Boundary," and the "Flathead."

7. Of the first of these we know only (see Appendix II.) that its eastern entrance is on the river of the same name, while it emerges in the vicinity of the "Steeple" or Mount Deception, while neither of the two last are entirely in British territory, hence the name of "Boundary Pass" for that one which has its culminating point north of 49° and which has been described (Appendix II.)

8. The "Kootonay Pass," the most southern, and, of those yet known, by far the shortest in British territory, having been already described in detail, as well as a plan and section having appeared (see Appendix II.), requires no further notice, but I will here observe that there is one point on which I may have been mistaken, namely, that the river at its western extremity, into which the Wigwam River falls, is perhaps not the main Kootonay River which I fell upon near the 49th parallel, but may be the Stag or Elk River, a branch of it. On reference to my map, however, it will be seen that seven miles of the course of this river is only dotted (signifying that I had not actually seen it there), so that the junction of these two rivers may take place in that interval. I have consequently

made the alteration in red on the original map (see Appendix II.) but in dotted lines as uncertain, and I take this opportunity of stating that whatever appears on any map of my own in continued lines is from actual observation, nothing obtained by report, however reliable, being accepted as certain. If this practice were more generally followed by travellers, the greater part of those mistakes and inconsistencies which cause such trouble to the mapper would be prevented. Whatever course the river above alluded to takes, the extremity of Kootonay Pass remains unchanged, for in proceeding westward out of it the direction would not be along but across the river, on to the tobacco plains, as shown in the section 1, Appendix II.

The passes of which the altitudes are known do not differ greatly, and I refrain from commenting on their relative merits, because, before any particular one can be selected for the construction of a road, the easiest land route from Hope, at the western bend of Fraser's River, should be ascertained, which, considering the distance, would be no very great undertaking. In conclusion, I would only remark that at present no pass in British territory is practicable for wheeled carriages.

Country South of the Saskatchewan River.—On reference to the maps it will be observed that the late exploring expedition has left a large portion of the country in the neighbourhood of the south branch of the Saskatchewan, and the tract between that river and the international boundary, totally unexplored, but in order to remedy this defect I have collected all the reliable information in my power, and I should here mention that the greater part of this I obtained from Mr. Harriott, a retired chief factor of the Hudson's Bay Company service, now living at Red River Settlement, who has travelled over the greater part of that country as far as the Missouri.

It appears that the south branch of the Saskatchewan is almost entirely destitute of wood up to the vicinity of the junction of Red Deer and Bow Rivers, the whole country being prairie, but about seventy miles south of that point there is a range of low wooded hills, having an extension east and west about eighty miles. These hills are usually called the "Cypress Mountain," from the fact of a species of pine, known by the name of "Cypré" to the French half-breeds, growing there in abundance, and appear to be the watershed between the Saskatchewan and Missouri, for there are streams described as running towards both rivers. There, moreover, seems to be a good supply of building timber, which may yet prove of much value. Being about seventy miles north of the boundary, it is well within British territory.

Route through the Interior.—As to a route from Red River Settlement to any of the more southern passes, it would follow the trail now in use to Fort Ellice, thence along the Quappelle River and Lakes, striking the south branch near its elbow, and then following the general direction of that river towards the mountains, taking whichever branch led to the selected pass. This would doubtless be entirely a land route, for the Assiniboine being very tortuous, and only fit for canoes, and the Quappelle being in places not even navigable for these frail craft, no water transport would be available except on the Saskatchewan, and if the country were examined, probably good halting places would be found which would allow of a direct course being made from the "Elbow" to "Harriott's Cypress Mountain," which would materially shorten the distance to the three forks of the Belly River, near the most southern passes. The distance from Red River to the western extremity of one of the passes would be probably 900 miles by the windings of a trail.

I have previously mentioned that to the west of the Rocky Mountains no land route to the Pacific in British territory is at present known, but we are aware that from Hope on Fraser's River the country has been traversed with pack animals, keeping north of 49° as far east as Fort Shepherd on the north fork of the Columbia, so that there remains from the base of the mountains but 140 miles in a direct line to be crossed in order to establish the fact of a land route from Red River Settlement to the Pacific. This would, however, be after arriving at the mountains unavailable for wheeled carriages. It remains, therefore, to be considered by the proper authorities whether the state of the Atlantic and Pacific provinces demand the opening of a waggon road.

D.—II.

TELEGRAPH AND MAIL ROUTE.

I have now to propose the establishment of an uninterrupted communication by electric telegraph between the Atlantic and Pacific through British North America.

Shortest Distance from Atlantic to Pacific.—It is worthy of notice that the "great circle" (shortest line on the globe) passing through Montreal, the seaport of Canada, and New Westminster, the capital and seaport of British Columbia, follows the valley of the Ottawa, thence to the north shore of Lake Superior through Red River Settlement, touching the South Saskatchewan, and so across the Rocky Mountains; and this is the only direct continuous line for a land route through the more northern part of the continent, clearing as it does both Lakes Superior and Winnipeg, and it will be this route that the continuous line of railway through the British provinces, whenever that shall be made, must follow.

Telegraph and Railroad.—Again, telegraph communication is at present complete from St. John, Newfoundland, and Halifax, Nova Scotia, to the most western settled parts of Canada; while in a few years the line of railroad will be complete between Ottawa, the future seat of Government of Canada, and Halifax, Nova Scotia, the nearest port to Europe in the mainland of North America, which is continually open during winter.

Distances.—The distance across the entire continent, not allowing for the small curves, are as follows:—

	Miles.
Halifax, N.S. to Montreal	650
Montreal to Ottawa	100
Ottawa to Nipigon Bay, Lake Superior	650
Nipigon Bay to Red River Settlement	400
Red River Settlement to Rocky Mountains	800

	Miles.
Rocky Mountains to the Gulf of Georgia	400
Halifax, N.S., to Gulf of Georgia	3,000
Atlantic summer port of Montreal to Gulf of Georgia	2,350
Western extremity of Canadian inland navigation to Gulf of Georgia	1,600

Of the total distance, 750 miles of telegraphic communication is at present established, leaving the remaining three-fourths yet to be accomplished.

Proposed Telegraph.—It would be ridiculous to expect for many years to come a continuous railway communication throughout this immense distance, but from the fact of over one-fourth of the distance being now complete, and considering the incalculable benefit the United Kingdom and her distant colonies would derive from connexion by telegraph, I am encouraged to advocate warmly the carrying out of this enterprise. Were the entire line in working order, and supposing the "Atlantic Telegraph" not in existence, British Columbia on the Pacific would be within ten days of England, whilst at present four times that period does not suffice for the conveyance of news, even through a foreign state.

It would consequently appear advisable to have this line at once marked out. All that portion through the wooded district from Ottawa to Nipigon Bay, and thence to Red River Settlement, could be accomplished with the least expense during winter; while the remaining portion, a considerable part of which is well-known (namely, from Red River Settlement across the Rocky Mountains to the mouth of Fraser's River) might be performed during the following summer.

A mail route might be established without much difficulty, but the objection which I see to it at present is, that on account of no continuous railway being in existence from Halifax, N.S., to Quebec, the forwarding of letters entirely through British territory could only be accomplished with anything like despatch while the port of Quebec was open during the summer season. However, this objection in no way applies to the telegraphic communication, which is of course open during the whole year, from Newfoundland and Nova Scotia to the west of Montreal, being one-fourth of the whole distance.

The construction of an Atlantic and Pacific railroad, which has so long engrossed the minds of Americans, is now in that country beginning to be considered a most formidable undertaking, and the citizens of the United States are very much divided as to the line of route. No less than five different lines have been surveyed by the Government; that near the boundary of Mexico appearing to be the most feasible. But in all of them there is a very great amount of sterile land to be gone through; and it would appear that a considerable portion of the line from St. Paul at the head of the navigation of the Mississippi, usually known as the "North Pacific route," which has been laid out so close to the international boundary, could be most easily carried over British ground. It seems therefore worthy of consideration whether this could not be made a joint international undertaking.

CONCLUSION.

In the introduction to this report, a general summary only has been given of my own proceedings, the details of exploration and scientific inquiry which would enter into a personal narrative having been purposely omitted; but in order that others may be able to judge of the *dégree* of dependence to be placed on the geographical and other information herein given, I will enumerate the principal instrumental and other aids employed.

Instruments.—The instruments used for geographical determinations and exploratory surveying were:—

Eight-inch sextant, the property of May, Observatory Department.	
Artificial horizon,	Exploring expedition.
Prismatic compass,	Self.
Pocket ditto,	Ditto.
Chronometer,	Admiralty.
Watch,	Self.
Aneroid barometer,	Exploring expedition.
Boiling-point apparatus,	Ditto.
Thermometers,	Ditto.
Telescope,	Self.
Magnetic instruments,	Colonial Department.

Besides which I employed note "log," and astronomical computation books, in the planning of which I was much aided by others, as well as a blank map in pieces, for sake of convenience.

Mode of keeping Records.—The reliance which I am now able to place on the country mapped is on account of my having always kept a regular dead reckoning of the courses, time, and estimated rate of travelling, which, together with the sketch of each day's route, is preserved in my "log books," this reckoning being checked as often as possible by celestial observations, and the little difficulty I find in gaining an idea of the general features or details of any part of the country is from having at the time kept full notes, leaving little or nothing to memory.

Elevations.—The elevation above the sea, depths of valleys, and other measurements of heights were made by an aneroid barometer compared at intervals with the temperature of boiling water, determined by an instrument of the most improved construction, and have been, when necessary, inserted in the accompanying maps, or referred to in the course of this report.

Geographical Positions.—The following latitudes and longitudes are deduced from celestial observations, except those underlined, which are "by account" from careful dead reckoning. Those in the second column are what I have adopted when my positions have differed from those of other observers, or the rate of my chronometer was irregular:—

Place.	Observation and Account.	Adopted.
York Factory	56 59° 8' N.	
Norway House	53 59° 0' N.	96 26° 0' W.
Fort Carlton	52 52° 5' N.	98 7° 0' W.
"	106 23° 8' W.	106 20° 0' W. by lunar observations.
Jack Fish Creek at Pike Lake	53 0° 5' N.	
Fort Pitt	109 33° 0'	
"	53 34° 9' N.	
Vermillion Creek, bend from N. to E.	109 33° 0' W.	
"	53 30° 2' N.	
Vermillion Creek, east end of chain of lakes	110 17° 0' W.	
Most Northern Point of Edmonton and Fort Pitt trail	53 40° 2' N.	
Fort Edmonton	111 11° 0' W.	
"	53 52° 2' N.	
Twin Knolls	112 27° 0' W.	
Wolf's Road, 10 miles N.N.E. of Elbow of Red Deer River	52 32° 9' N.	
Junction of Little and Great Red Deer Rivers	113 50° 0' W.	
Cache Camp	52 2° 0' N.	
Slaughter Camp	114 20° 0' W.	
Point of Wood's Valley	51 21° 2' N.	
Site of "Bow Fort"	114 46° 0' W.	
Dead Indian Creek	51 9° 4' N.	
Sunday Valley	115 20° 0' W.	115 20° 0' W.
Blood Creek	51 3° 1' N.	
Belly River	114 59° 0' W.	
Entrance of Kootenay Pass	50 44° 4' N.	
Watershed	114 43° 0' W.	
Flat-head River	50 23° 1' N.	
Wigwam River, North and South Bluffs	114 40° 0' W.	
Kootenay Trading Post, H. B. C.	49 51° 9' N.	
Kootenay Camp	114 31° 0' W.	
"	49 31° 0' N.	
Flat-head River	114 34° 0' W.	
Redstone Creek	49 27° 0' N.	
North End of "Waterton" or "Chief's Mountain" Lakes	114 50° 0' W.	
"	49 22° 1' N.	Chronometer.
"	114 55° 0' W.	Lunar.
"	49 17° 0' N.	Account West.
"	115 15° 0' W.	Account East.
"	48 55° 5' N.	115° 25° 0' W.
"	115 31° 0' W.	
"	40 55° 6' N.	
"	115 19° 0' W.	
"	114 55° 0' W.	
"	115 30° 0' W.	
"	115 22° 0' W.	
"	48 57° 3' N.	
"	114 46° 0' W.	
"	49 7° 6' N.	
"	114 18° 0' W.	
"	114 27° 0' W.	
"	114 27° 0' W.	
"	49 6° 2' N.	
"	114 9° 0' W.	
"	114 16° 0' W.	

N.B.—Degrees, minutes, and tenths of a minute are used; no seconds.

Names.—I am responsible for but few proper names, for whenever I was able to discover the Indian name of any place, I have (unless too long or unpronounceable) inserted it, and its interpretation in English. Where this has not been the case, I have generally given the names of travellers or naturalists, so that I am not responsible for such as "Belly River," "Devil's Head," and the like, which are translations from the Indian.

Sketches.—My sketches of the passes of the Rocky Mountains, forts, and other objects of interest in the country I have not inserted here; but if it should be considered advisable for copies to be made of any of them, I shall be glad to place them at the service of Her Majesty's Government.

Aid of Hudson's Bay Company.—I cannot pass over the aid which has been afforded me by the Hudson's Bay Company, who, besides refusing remuneration for the hospitality afforded at their establishments, have rendered every assistance to the prosecution of my journeys through their territories, as well as supplying necessaries procurable only from their own stores.

Favours received at Washington.—The favours conferred upon me by the United States Government authorities at Washington, which I visited on my way to England for the purpose of obtaining the latest maps and other information concerning the natives and country near the international boundary, I shall not easily forget, for on my mentioning in what capacity I had been employed by Her Majesty's Government, I was presented with the Government maps drawn up under the War Department, the latest report on their well regulated "Indian affairs," and I, moreover, received from the Smithsonian Institution many scientific and other publications.

Conclusion.—In drawing this report to a conclusion, I would wish it to be understood, with respect to the exploring expedition on which I at first served, that the course I pursued was the only one to my mind compatible with the position of an officer in Her Majesty's service, and the carrying out of the wishes of the Government.

THOMAS BLAKISTON,
Capt. Royal Artillery.

Woolwich, October 21, 1859.

APPENDIX I.

Fort Carlton, Saskatchewan River, January 3, 1858.

Sir,
As the subject of a communication between Red River Settlement and some civilized portion of the British dominions is beginning to attract some amount of public attention, and as two indifferent routes are at present in use, one of which, namely, that from Canada, via Lake Superior, Rainy Lake, and the Lake of the Woods, you have this last season traversed, and will no doubt have made a report on the same, while during the same season I have passed the other, namely, from England, via York Factory, on Hudson's Bay, and Lake Winnipeg, I have the honour to lay before you my observations on the same for the information of Her Majesty's Government.

Description of Boat used in River Navigation.

In the first place, the mode of transporting passengers and goods between York Factory, Hudson's Bay, and Red River, which is at present and has been for many years in use, is by means of large wooden boats built in the country, and well adapted for this kind of navigation. Each boat is of the following construction:—Length of keel 30 feet, over all 42 feet, which gives considerable shear equally to both stem and stern-post; breadth of beam 9 feet, sharp at both ends, depth inside 3 feet, and when loaded with 70 "pieces" (about 56.cwt.), besides the crew, oars, sail, mast, &c. draws two feet of water; it is steered by means of a long sweep passing through a ring made fast to the stern-post, except under sail, when a rudder is shipped.

Voyages.

Each boat is manned by one steersman, one bowsman, and six or seven middlemen, who, mostly half-breeds of French-Canadian or British descent, labour in the service of the Hudson's Bay Company for very moderate wages; their food, however, which consists of "pemmican" and flour, being supplied by the Company, as much as they have need of; in fact, were it not that they have plenty of good working food, they certainly could not continue this laborious work.

Up-passage.—Description of the Route.

The spring floods having subsided, the upward journey is performed as follows:—Leaving York Factory, which is situated on the left bank of Hayes River, five miles above its mouth, it is possible with a fair wind to sail about six miles to the head of the tide, at which place poles and the tracking line are obliged to be used for the purpose of passing some shoal places; from this sailing or "tracking" (hauling the boat in the manner of a canal barge by a line with four men walking on shore), with occasional poling over shoal places, is continued for a couple of days, after which the continual bends of the river and the strength of the current prevent the use of the sail, the mast, a rough pole, is therefore thrown overboard, and tracking with occasional poling is continued until the Rock Portage is reached, 124 miles above York Factory.

Work of Men.

Tracking is hard work for the voyagers, they take it turn about, an hour and a half at a time, in fact this river work, to say nothing of the "carrying" at the portages where many are injured, is very laborious and trying, particularly considering the fact of their being almost continually in wet clothes, from the necessity of frequently jumping into the water for the purpose of lifting the boat over stones, and their having to "track" over all sorts of ground under the high alluvial banks, often where scarcely foothold can be obtained.

Time occupied.—Nature of the Country.

This 124 miles of river, in my case, travelling with a brigade of six boats, lightly loaded, namely, with 50 pieces, was accomplished in six days. The river runs in a deep channel through alluvial soil, where not a piece of rock is seen, save the boulders in the bed of the river; from this first impediment westward to Lake Winnipeg the geological formation is primitive, the rock, which is nearly always at the surface, being granite and schist, and the whole country being but little elevated above the water.

Description of the Route.

Portage after portage, with occasional intervening lakes, succeed one another in rapid succession, over some of which the boats have to be carried, but at others hauled up the rapids by ropes, and the cargoes carried over land; suffice to say, that in the next 40 miles 20 portages are made, taking five days. After this two lakes of considerable size, Knee and Holey Lakes, are passed with four portages between them, soon after which the River Wepinapans narrows so much that the oars sometimes touch granite rock on each side, which rises vertically to a considerable height. Before emerging from this narrow gorge, which continues for some miles, some very bad rapids have to be surmounted, and again before arriving at White-water Lake a portage for cargoes and boats of two-thirds of a mile has to be made, in order to avoid the White Falls. The end of a narrow lake is within a few yards of the source of the Echiamamis, a small stream whose waters flow to the westward; when sufficient water is only kept for the passage of boats by two dams six miles apart, these were formerly the work of beavers, but are now kept up by the passing boats. At the passage of a boat a portion is pulled away, the boats run through, and it is again shut securely. This stream, which on account of dams has little or no current, is for the most part through marsh, and so narrow that the willows nearly meet over head, and the boat sometimes touches the bank on each side. At a distance of 358 miles from Hudson's Bay Sea River is entered, when, by making the last of the 35 portages, and pulling against stream, Norway House, a post of the Hudson's Bay Company is reached, from which to Lake Winnipeg is but 20 miles without rapids.

Up-passage, Distance, and Time.

Thus, from York Factory to Norway House, a distance of 400 miles, is accomplished only after laborious work for three weeks. The time for the passage across Lake Winnipeg to Red River, 300 miles, depending entirely on the wind, may be taken on an average at seven days; making the entire distance from York Factory, Hudson's Bay, to Red River Settlement, 700 miles, in four weeks on the upward passage.

Down Passage.

The passage down stream from Norway House to York Factory being accomplished in nine days, making about half a dozen portages, at three of which the boat is carried over, one being the two-thirds of a mile portage, all the other rapids being "run," not, however, without considerable risk, makes the passage from Red River to York Factory sixteen days.

Entire Passage.

Thus to go to and from Red River to Hudson's Bay without stoppages is about seven weeks.

Another Route.

The outlet of the waters which are collected in Lake Winnipeg from the Saskatchewan, Swan River, Red River, &c. is from the north end of the lake by Nelson River, which flows into Hudson's Bay at the mouth of Hayes River; but the falls and rapids are said to be so very heavy on this river, besides its being the longer route, that it is now never used.

Impossibility of Improvement for Steamers.

It has been proposed to improve the former route in order to allow of the passage of steamers, this however from the foregoing description will be seen to be impossible: for, if by cutting through solid granite and swamp, and the construction of locks, the portages could be avoided and the smaller rivers widened, yet in the lower rivers the want of water could only be overcome by dredging, which operation would be entirely destroyed by the spring floods; and I think that it would be the opinion of any observing person passing through this route, that it would be impossible so to improve it as to allow of the navigation of anything larger than the boats (previously described) at present in use; and certain it is, that the future produce of the vast western plains could never be transported in this manner.

Hudson's Bay.

But were a route practicable there exists a consideration, which is above all others; namely, that from the outlet of Hudson's Bay being so far north, and the amount of ice in the bay itself, vessels cannot remain more than six weeks out of the whole year at York Factory, with a chance of afterwards being able to make their way out again to the Atlantic.

Natural Outlet.—Land Route proposed.

No doubt the natural outlet of this great western district is across an easy country to the water of the Mississippi and Missouri, which if first established the west is lost to Britain. It behoves us, therefore, to establish a route through our own territory, for the encouragement of emigration to and the transport of the future produce from Red River and the great Western Plains to Canada. Now, as the water route from Lake Superior to Red River which you have traversed is of a still more

amphibious nature than the more northern one described in this report it seems natural that we should look for a land route; I would therefore suggest a search for such a one, considerably to the north of the eastern part of the canoe route, namely, from a port on the north shore of Lake Superior crossing to the north end of the Lake of the Woods, which, as well as being quite as convenient for the lake navigation by steamers, would be on the line of a continuous railway from other portions of Canada and the United States, besides being much more preferable in a military point of view than a route near the boundary line.

Means of Transport.

Steamers will no doubt navigate Lake Winnipeg and Red River, but the Saskatchewan being obstructed at its mouth by a large rapid, and at other places by minor ones, besides the upper part containing numerous shifting sand bars, will likely be little used for navigation, particularly on account of the very level nature of the country westward from Red River and Lake Winnipeg, so unsuitable to the formation of railways, which I doubt not will be the first means of transport on a large scale on these plains.

Postal Communication through United States.

At present there exists no postal communication between Canada and Red River except through the United States.

John Palliser, Esq.,
&c. &c.

I have, &c.
(Signed) THOMAS BLAKISTON,
Lieut. R. Artillery.

P.S.—By the arrival of the packet, I hear that the Canadian Government having granted a sum of 5,000*l.* for the establishment of a route between Lake Superior and Red River, an engineering party is at present employed in laying out a road from the Lake of the Woods to the settlement of Red River, to form the western section of the route.

January 29, 1858.

T. B., Lieut. R.A.

APPENDIX II.

Report on the Exploration of the Kootanie and Boundary Passes of the Rocky Mountains in 1858. By Captain BLAKISTON, Royal Artillery.

On the 12th of August 1858, I left the camp of the main body of the exploring expedition at the site of Bow Fort, base of the Rocky Mountains, lat. $51^{\circ} 9' N.$, long. $115^{\circ} 20' W.$, and after crossing the Bow River by a ford about four miles above that point, I gained ground to the eastward, so as to get clear of the broken and wooded country on the edge of the mountains.

My party consisted of three Red River half-breed voyageurs, Thomas Sinclair, Amable Hogg, and Charles Racette, besides a Thick-wood Cree Indian "James," whom I had engaged as hunter to the party. I had ten horses, five of which were used for riding, and the rest carried the packs, containing a quantity of ball and powder, tobacco, a few knives, and other articles of small value for Indian trade; also some dried meat and pemmican, with tea, sugar, and salt, as well as two boxes containing my instruments, books, &c.

Soon after leaving Bow River we crossed one of its tributaries, the Kananaski or Lake River, a rapid stream coming out of the mountains from the south-west; here we saw the remains of many wooden carts which had been abandoned by a party of emigrants from Red River Settlement, under the late Mr. James Sinclair, on their way to the Columbia in 1854, who had found it impossible to drag them further into the mountains. This pass, I believe, follows the course of the river to its source, and is the one by which Sir George Simpson, governor of the territories of the Hudson's Bay Company, as well as another party of emigrants crossed in the Rocky Mountains in 1841. In the past season it was travelled by Mr. Palliser.

The forests consist of spruce (*abies alba*), a small pine (*p. banksiana*), and another rough-looking *abies* which grows to a large size, also a few balsam poplar, and aspen. In travelling through these mountain forests, the greatest obstruction is the fallen timber, which, lying about in all directions, causes much exertion to the horses, and confines them to a slow pace. It was during this first day's travel that I noticed the devastating effects of a tempest; numbers of trees had been blown down, and many broken short off. The work of destruction had evidently been of this year, but there were also signs of former work of the same character.

The following day, our course still tending a good deal to the eastward, carried us farther and farther from the mountains, but we passed within twelve miles of a marked outlier, which from its peculiar form, I called "The Family." After this as we travelled along through a partially wooded country, and receded from the near hills which obstructed the view, a sharp peak entirely covered with snow opened to us at about forty miles distance. The wind was from the westward, and to the east of the summit of the peak rested a mass of white cloud, which was very marked, for there were no other clouds to be seen, with the exception of a few light cirri over head. This attending cloud gave the mountain the appearance of an active volcano, and the effect against the clear sky was extremely beautiful. The phenomenon was caused by the aqueous vapour of the warm Pacific breeze being condensed by the coldness of the snow, and appearing as a cloud to the leeward of the peak. I took careful bearings of this mountain, to which I gave the name of "The Pyramid."

We camped at the forks of a creek, called by our hunter the "Strong Current." Here he was successful enough to procure a few fine mountain trout, which proved a very agreeable change to our ordinary fare, which consisted of dried buffalo meat, containing by no means too large a proportion of

fat, washed down by tea. Bread was not in our bill of fare, and I may here state, that during the whole summer while travelling, with the exception of two Sundays, I never tasted a morsel of farinaceous food. This may appear astonishing, but when continually travelling, with the appetite sharpened by a ride over the prairie in the cool breeze of the mountains, one becomes accustomed to do without flour, salt, sugar, &c., which under other circumstances would be considered indispensable.

The next day was Saturday; we rose early, packed the horses, and made a start as usual about sunrise, and travelled on through much the same sort of country, the up-lands being generally wooded, while the bottoms were partially covered by scrub willow and other bushes. We halted between 8 and 9 A.M. for breakfast, giving the horses a "spell" of a couple of hours or so; then started again, and gained a somewhat elevated position, from which we had an extensive view of a fine valley, watered by two clear mountain streams, which as they neared the edge of the great plains, stretching probably without break for 700 miles eastward, united, and with mingled waters, pursued their course towards Bow River, ultimately to pour themselves into the icy basin of Hudson's Bay. I continued on till we reached the southernmost of the two creeks, within ten yards of which, under the shade of some fine poplars, I pitched my small patrol tent. The valley bottom was a fine piece of prairie pasture for the horses, and presented a most suitable resting-place for a Sunday camp. I had (for it was only two o'clock) halted in sufficient time to allow me to obtain an observation of the sun during the afternoon for comparison with one I hoped to obtain on the morrow, and so rate my chronometer. This important instrument was carried each day, turn about, by one of the men, who for that day did nothing else but carry it as carefully as possible. I would recommend this plan to future explorers. In a large party, a few of the steadier hands should be selected for this service; but the same man should never be obliged to carry the instrument every day, lest he become careless.

My ordinary mode of travelling gave the horses six to seven hours' work per day, with the exception of Sundays. Frequently I halted from breakfast till noon, in order to obtain an observation for latitude, in which case I camped later. I never, however, gave up the plan which I adopted from the first, of making an early start, and getting the best part of the day's work over before noon. There are many reasons in favour of it. The horses were mostly Indian ponies, which are hardy and work well on grass. They grow somewhat lean while living out during the severe winter weather, but fatten rapidly with the appearance of the new grass in the spring. They are not accustomed to shoes, but I had some on three of them, whose feet I considered too much worn down for the rocky ground of the mountains. On camping, the horses after being watered, are left to themselves for the night, the fore legs of those likely to wander being hobbled with a piece of soft leather. They are very sagacious in following a trail. The 15th of August was a Sunday. While continually travelling, it will be found that rest one day in seven is required by man and horse, the former taking advantage of it to wash and mend clothes.

The weather continued fine, and this day the thermometer rose to 85° in the shade, with a clear sky, and fresh breeze off the mountains in the afternoon, the day closing with a calm evening. This mountain breeze appears to be a regular occurrence during the fine summer weather of this season. On each of three successive days of fine weather which we enjoyed at the site of Bow Fort, the morning was calm, at about 7½ A.M. the wind commenced lightly from about W.S.W. off the mountains, and gradually increasing; in the middle of the day and afternoon it blew a fresh breeze from the same point, with usually some *cumuli* over the mountains, which disappear before reaching the plains; in the evening the wind fell, and the night was calm. The explanation of this phenomenon is the same as that of the sea breeze so unvarying in tropical islands, namely, that as the sun gains altitude, the great plains which are entirely prairie become heated, and consequently the air in contact with them ascends and is replaced by the cooler air from the mountains.

Our general course for the next three days was a point east of south, for we were now as far out from the mountains as our Indian thought requisite. We were, however, within the outlying ridges, which are numerous, and all run parallel to the larger ranges of the great chain, namely S.S.E. Thus travelling the course we were on, we had very seldom to surmount any high land, but passed along the valleys between these ridges.

The country was less wooded than that previously passed, being for a considerable part fine prairie slopes. The main range or water shed, as I supposed it to be, was occasionally visible, through gaps in the nearer mountains, at a distance of about thirty miles.

On the 16th our hunter was lucky enough to procure us some fresh meat in the shape of wupiti or wa-waskasew (red deer) of the Crees. In order to lighten the burthen of the horses and preserve the meat, the bones were taken out, and it was cut into thin flakes and half dried over the night camp-fire.

The same afternoon, as we arrived at Trap Creek, just above its junction with High Woods River, we found six tents of Thick-wood Stone Indians who were just preparing their encampment. We camped along with them, and as usual, when with or near any Indians, my flag, a St. George's Jack, was hoisted on a pole in front of the tent. I gave them a present of some tobacco and fresh meat. These Stone Indians, with whom are associated also a few Crees, and whose hunting ground is the wooded and semi-wooded country along the base of the mountains at the head waters of the Saskatchewan, are a harmless and well-disposed people towards the whites. Education has, thanks to the former Wesleyan missionary, the Rev. Mr. Rundle, and his successor, the Rev. Thomas Wolsey, made some little progress amongst them; a few being able to read and write the Cree syllabic characters, now in general use among the missions of the north-west.

During the afternoon I held a talk with these Indians. I told them plainly for what reason we had been sent to the country; that Her Majesty was always glad to hear of their welfare, and that any message which they might have for Her, I would take down in writing.

"We are glad," said an old man, "that the great woman Chief of the Whites takes compassion upon us, we think she is ignorant of the way in which the traders treat us; they give us very little goods and ammunition for our furs and skins, and if this continues our children cannot live. We are poor, but we work well for the whites. The Indians of the plains treat us badly and steal our horses, but we do nothing to them, for the minister tells us so." In answer to questions from myself, they said that they would wish white people to come and live among them, and teach them to farm, make clothes, &c., so that "their children might live," for the animals are getting every year more scarce. I may here state, that I have been fortunate enough this year to fall in with many camps of the different tribes of Indians inhabiting this country, from whom I always obtained as much information as possible on their present state, and their wishes as to the future; and I hope to draw up a report on the same for the information of Her Majesty's Government; for without doubt, when deciding on the future of this country, some provision should be made for the poor uncivilized beings to whom by right the soil belongs.

From these Indians I obtained a pair of saddle-bags, of which I was in want, and by giving in boot a little ammunition and tobacco, I changed a lame horse which I had brought with me for that purpose for a good strong Indian pony.

Crossing Spuchee or High Woods River on leaving the Indians in the morning, we travelled over undulating prairie all the forenoon, crossing another tributary of this river. During the latter part of the day we passed through a narrow wooded ravine between rugged hills, covered with burned forest, and camped on a small creek. Here I determined to make a cache. Therefore selecting a good thick spruce tree, we enclosed in a box some ammunition, tobacco, and a few other things, which with half the bag of pemmican which still remained intact, rolled up in a piece of buffalo robe, we suspended from a branch about fifteen feet from the ground.

We were delayed some time next morning by some of the horses having strayed a distance into the woods during the night; however, when found they were quickly unhobbled, saddled, and packed, and we started not very long after our usual hour. The Indian trail led between numerous wooded ridges, but the greater part of the wood was burned. The soil of the valleys was usually a deep dark mould, supporting a luxuriant vegetation of the smaller plants. This is the nature of most of these mountain valleys. Where the strata are upheaved to the surface, the ground is of course rocky; such is, however, not often the case in the valleys, but the lines of strata running along the ridges are distinctly visible even when the grass is growing, owing to the difference of colour of the grass on the almost bare rock. The strata run in the direction of the ridges, namely, a little east of south, and usually dip from, but in some few cases towards, the mountains, and at a considerable vertical angle.

In the afternoon we passed close on the left hand a very remarkable feature; it was a mass of rock projecting upwards from the top of a hill, and visible at a considerable distance; from its peculiar form I called it the "Chopping Block." Soon after we gained the height of land between the waters of the Spechee and Mocowans, or Belly River, and the wide prairie valley of the latter broke upon our view. We descended a short distance and camped at the first wood and water.

Before gaining Belly River in the morning, the quick and practised eye of the Indian caught sight of a herd of buffalo in the valley; he therefore went ahead, and by the time we had halted on the river, and I had obtained an observation, he had killed one animal. I remained here until noon, in order to obtain a meridian altitude, and so complete my observation for latitude and longitude, occupying a portion of the time in measuring the heights of the successive river levels with the aneroid barometer.

These "river levels" are a very general feature in this portion of the Western Continent; I have observed them on all parts of the Saskatchewan above the forks, and its tributaries issuing from the Rocky Mountains, as well as on the Kootanie fork of the Columbia on the west side, and the Flat-head River in the mountains, from an altitude of 1,000 to upwards of 4,200 feet above the sea. They are in some places very marked, and appear as a succession of steps from the bed of the river to the level of the plain above, often in sight for miles, and running horizontally along either side. The tread of the step is of greater or lesser width, the rise nearly always abrupt and well marked. They were very decided in the valley of Bow River at the base of the mountains, where they appeared cut with mathematical accuracy.

The levels measured at Belly River were:—

	Above the sea.
Present bed of the river	4,024
1st river level	4,085
2nd	4,176
3rd, the level of the valley	4,226

These river levels are for the most part, on the lower portions of the branches of the Saskatchewan, on a somewhat larger scale in vertical height than near the sources.

I was now on Belly River at about the same altitude as on Bow River at the site of Bow Fort, namely 4,000 above the sea, although 87 miles (geographical) in a direct line S.S.E. from it. From this point the route of the party may be traced on the plan attached to this report. The plan does not include the country to the northward, which has no connexion with the passes reported upon. I have, however, the whole country mapped on a smaller scale.

The bed and sides of this river are rocky, the strata of hard grey sandstone, much inclined, and the current obstructed in places by immense granite boulders. We found no difficulty in crossing the water, though running swiftly, being not deeper than three feet, and about 25 yards across.

Looking through the gap in the near range through which the river issues, I saw a very decided dome-shaped mountain. It afterwards proved to be, when seen from the plains, and also from the top of a mountain in the Kootanie pass, the highest and almost only peak rising above the others in this part of the mountains. After the distinguished British naturalist, I named it "Gould's Dome." The gap through which I had seen this mountain was in the eastern or near range, of very regular form, extending, with the exception of this gap, for a distance of five and twenty miles without break. The crest of the range was of so regular a form that no point could be selected as a peak, I therefore gave the whole the name of "Livingston's Range;" it is a very marked feature when seen from the forks of Belly River and the plain outside.

On leaving Belly River we rose considerably, and keeping along under Livingston's Range the sun had dropped behind this great curtain before we camped. The spot was 540 feet above Belly River, which we had left behind to the northward. Looking to the mountains ahead of us I picked out the most prominent, and took bearings of them before the Indian, who was in the rear hunting, came up. There were two near one another bearing 30 miles south, one of which, from the resemblance to a castle on its summit, I named "Castle Mountain;" to the east of these, but at a greater distance, a portion of the mountains stretched out to the eastward. From reports which I had previously heard, I took the most easterly one, standing by itself, to be the "Chief's Mountain," which the Indian on coming up confirmed, and pointed out the place where on the morrow we should turn into the mountains.

This offset range occurs, as I afterwards discovered, just at the 49th parallel or international boundary line.

The morning of the 20th of August was thick and hazy, with occasional showers of rain, which entirely prevented me from obtaining the good view of the country which I had hoped for, having seen but little in the uncertain light of the previous evening. I therefore travelled on, crossed Clow-nest River, and soon after noon gained the entrance of the Kootanie pass, where another of the branches of Belly River issues from the mountains. Here we struck a narrow but tolerably well-beaten track, which the Indian informed us was the Kootanie trail, by which these Indians had crossed the mountains the past spring. Making a turn therefore to the W.S.W., nearly at right angles to our former course, we followed this track, which led up a narrow valley along the left bank of the river, and between high wooded hills; the travelling was good, for we were on the even grassy river levels, and we camped at a spot where a small mountain stream entered the river from the north.

We were now fairly in the mountains, and had already overpassed the spot where our Indian guide knew anything of the road but by report; he knew that if all went right we should be some three or four days in crossing, and had been told that there was but one track, and that we were not likely to miss it. It may be asked, why was I without a guide? The fact was, that a guide had been allotted to me by Mr. Palliser, but on leaving the camp of the expedition on Bow River, I had started without him on account of the sickness of his wife. He promised to start the following morning and overtake the party; which he failed to do. It will be seen subsequently, however, that I did not suffer by his absence, and I am now glad that he was not of the party, for I have no great faith in the so-called "guides," and think they are seldom worth their pay.

The entrance of this pass is in latitude $49^{\circ} 34'$ N., and longitude $114^{\circ} 34'$ W., being (consequently) 40 English miles north of the boundary line. I have omitted to insert the latitude and longitude of points where I obtained observations, because by referring to the map the geographical position of any place may be seen.

We started at 5.40 in the morning, with the sky overcast and a drizzling rain, and soon entered thick woods—and uneven ground, with a great many fallen trees, which caused the horses to travel slowly. We continued travelling in this way and gradually ascending along the course of a small creek running into Railway River, which we had left where the trail parted from it; this river was so named by me from the striking advantage offered by its "levels" for the entry of a railway into the mountains. Gradually the stream became less and less until after gaining considerable altitude it dwindled into a small quantity of water falling in a cascade. Here we passed Hero's Cliff, an enormous vertical escarpment, facing the east, of hard red sandstone or quartzite, with the strata dipping at least 45° to the west. We now rose rapidly as will be seen by reference to Section No. 1 (the Kootanie Pass); the trees became smaller, and we soon reached the region of rock and alpine plants; here were some large patches of snow and a couple of ponds of clear water; we passed over a quantity of débris of hard grey limestone, of which the peaks on our right hand, namely to the N.W., were composed. As we were now clear of all shelter, we felt the cold damp east wind, which blew a fresh breeze, and drove along scudding clouds which prevented any extensive view. We were now on the watershed of the mountains, the great axis of America; a few steps farther and I gave a loud shout as I caught the first glimpse in a deep valley, as it were at my feet, of a feeder of the Pacific Ocean. It was the Flathead River, a tributary of the Columbia. At the same moment the shots of my men's guns echoing among the rocks announced the passage of the first white man over the Kootanie Pass. I halted for the purpose of reading the barometer, which showed an altitude of 5,960 feet. It was just five hours since leaving our previous night's camp, at an altitude of 4,100 feet.

This is no place for a dissertation on the physical geography of North America, but I may simply state, that in that portion of the Rocky Mountains comprised between the parallels of 45° and 54° north latitude, rise the four great rivers of the continent, namely, the Mackenzie, running north to the Arctic Ocean, the Saskatchewan east to Hudson's Bay, the Columbia west to the Pacific, and the Missouri south to the Gulf of Mexico; thus we may say, that in a certain sense that portion of the mountains is the culminating point of North America, and I now, on the Kootanie Pass, stood as nearly as possible in the centre of it.

A rapid descent of two hours brought us to the Flathead River, a clear and quick running stream, dividing a beautiful partially wooded valley enclosed by mountains; here we halted soon after mid-day, having passed the great watershed, and descended again 1,400 feet without breakfast.

During Sunday I did not move from my pleasant camp, where was wood, good water, and good pasture, everything to be desired by the traveller. I was engaged in obtaining observations for latitude and longitude, and computing them, writing up my notes, &c.; and I also made a sketch of the mountains over which we had passed the previous day. The men brought in some ducks, grouse, and trout, which made an agreeable change in our diet; two or three humming birds were seen about the camp.

The track now led up to the course of Flathead River, through thick forests with occasional openings, crossing several mountain streams, feeders of the river. We halted for breakfast on an open piece of swampy ground. On moving on again we plunged into thick forest, where the track was greatly obstructed by fallen timber. The Kootanies cut through a good many of the fallen sticks to allow of the passage of the horses, but still the greater number remain as they fall, and cause much twisting, turning, and branching of the track. We ascended gradually, passing a few fine pieces of open meadow, until we arrived near the head waters of the river, when the different streams composing it became mere mountain torrents. Here we commenced a steep ascent, the path ascending in a zig-zag up the hill; the trees, mostly spruce and fir, became smaller until we gained the summit of this knife-like ridge, from which an extensive view of the mountains was obtained. I halted to contemplate the scene, take bearings, and read the barometer, which showed an altitude of 6,100 feet. All appeared, however, utter confusion, such slight differences were there between the different mountains and ridges. One peak alone showed itself above the general surface. It lay to the northward about thirty miles distant, and I recognized it as "Gould's Dome," which I had previously remarked from the edge of the plains. I estimated it to be not more than 1,000 feet above my present position, which would give it an altitude of about 7,000 feet. The rest of the mountains appeared all about the same level, and but few of greater altitude than the ridge from which I surveyed them; there were visible the main range or watershed, then a number of ridges and mountains densely wooded, and of somewhat less elevation; after which, to the westward, higher mountains, the ranges generally taking a N.N.W. and S.S.E. direction. Such was the scene to the north of my position, but to the southward the mountains appeared to have no general direction, as many running crosswise as lengthwise. I was now on a height of land between two branches of the Columbia; the rock was the same hard grey sandstone as observed all along the base of the mountains on the east side, no granite showing anywhere.

Heavy dark clouds were gathering rapidly, and the louder and louder rumblings of thunder warned us of an approaching storm. We had descended but a few yards of the great western slope when the tempest broke with all its violence, and we were wet to the skin in a few moments; my own habiliments were far from waterproof, being simply a flannel shirt and pair of leather trowsers, with a striped cotton shirt over all. The descent was very steep, the horses having in some places difficulty in keeping their legs, although the path was zig-zag, and the continual descending on foot was very trying to the legs. After some distance, however, the descent became less steep, and we continued our course for a couple of hours before coming to any place fit for camping. Although camping in the woods is always to be avoided with horses, we were at length induced to halt from the appearance of some old skeletons of Indian lodges, not knowing how far we might have to travel before coming to any open place; and we camped, for the first time, in a Columbian forest.

The change in the vegetation was first made evident to me on descending the mountain, by the appearance of a beautiful and regularly formed cedar, which, for the sake of remembering the tree, I then called the "Columbian Cedar." It flourished at an altitude of about 5,000 feet, and I subsequently observed it as low as 3,000, but I feel doubtful as to whether it descends to the Tobacco Plains. Besides this I found, to me, a new *abies* something like the balsam fir of the Atlantic slope, but with a rough bark, and growing to a large size; the spruce and supposed Bank's pine remained with a few balsam poplar and birch, some of good size; also maple and alder as underwood. A new larch appeared, an elegant tree; and around our camp were the dead stems of many deprived of life, no doubt in years past by fire, rising to an immense height, and tapering upwards perfectly straight, without a limb, to a fine point.

The next day we travelled on through these forests, continually descending, and before noon arrived at Wigwam River, where it passes between two high rocky hills, which, from their imposing appearance from this spot, I called the North and South Bluffs. The bed of the river was deeply cut in the valley and exposed grand sand cliffs from two to three hundred feet in height, portions of these cliffs were broken, and pinnacles and blocks of different forms were left, having at a short distance a most fantastic appearance. The track leaving the river and ascending a steep bank, carried us for five miles over a very rocky piece of country, where the trees were of stunted growth from want of soil, to the junction of Wigwam River with the Kootanie Fork of the Columbia, or its tributary the Elk River. The former was forty yards wide and two to three feet deep, and the latter sixty yards across with a depth of four to six feet, both running with a swift current, their beds being rocky and stony. The Kootanie Fork could be seen coming down a valley from the N.N.W., from near a well-marked mountain about twenty-seven miles distant, which has been called "The Steeples." I believe that not far above the Wigwam tributary another, called the Elk River, comes in from the north, down a long narrow valley in the mountains. We descended about 300 feet, crossed the small river, and having lost the trail, camped for the night, the Indian's opinion being that we must also cross the main river, which would have occupied more time than the decreasing daylight would allow us. On going lower down the river in search of a better crossing place, I luckily struck on the proper

trail leading up the side of the river bank towards the south; so we turned in that night with the satisfaction that we were still to travel in the morning on dry land.

To the west of us, on the other side of the river, was a level partially wooded country, a portion of the Tobacco Plains, which, as will be seen by reference to the plan, is a tract of country of about 10 miles in width, stretching from near Mount Sabine on the north to the southward of the boundary line, bounded on the west by low wooded hills, and skirting the foot of Galton's Range on the east. The Kootanie Fork in its southern course traverses these plains.

Being now at the western extremity of the Kootanie Pass, I will pause to point out the capabilities it affords for a railway across the mountains within the British possessions. I should premise that I have not sufficient evidence to be able to state that the Kootanie Pass is absolutely the most advantageous place for the crossing of a railroad from the Saskatchewan Plains to the Pacific, because the mountains to the north have not yet been sufficiently explored; but I am able to say that it is the most southern line within the British territory, and, as yet, by far the shortest; moreover, I have every reason to believe that the most suitable portion of the mountains for the passage of a railroad will be found to the south of Bow River.

The Kootanie Pass crosses the Rocky Mountains from the Great Saskatchewan Plains on the east, to the Tobacco Plains on the west, its extremity on the former side being 40 and on the latter 18 English miles to the northward of the international boundary, the 49th parallel of north latitude. Its length is 40 geographical or nearly 47 English miles, extending from longitude $114^{\circ} 34'$ to $115^{\circ} 24'$ west. It leaves the Saskatchewan Plains where they have an altitude of about 4,000 feet above the sea, rises 2,000 feet to the watershed of the mountains, descends to Flathead River, again to an altitude of 4,000, follows up this river to its head waters, then crosses a precipitous ridge, reaching an altitude of 6,000 feet; it then descends the great western slope, falling 2,000 feet in two miles of horizontal distance, after which, by a nearly uniform grade of 100 feet per geographical mile, it gains the Tobacco Plains at the point where the Wigwam branch enters Kootanie or Elk River.

By reference to Section No. 1, it will be seen that there are three obstacles to the passage of a railroad; namely, two mountains and one steep slope. As to the mountains, they could, I consider, without difficulty be pierced by tunnels. The great western slope is a more serious obstacle; however, in the following details I hope to show that it also may be overcome.

From the forks of Belly River on the east side the line would traverse the gradually ascending prairie to the entrance of the pass where Railway River issues from the mountains. This river would be followed up with a grade of 1 in 180, or 34 feet per geographical mile for $7\frac{1}{2}$ miles, the "river levels" affording considerable advantages; leaving this river it would follow the course of my track marked on the map. A cutting of about $3\frac{1}{2}$ miles would lead to a tunnel of nearly 5 miles in length, which would pierce the Watershed mountain, and come out in the valley of Flathead River, the whole having a grade of 1 in 180, or 47 feet per geographical mile. On emerging into the valley, the line would skirt the base of the mountains to the north of the track, thereby avoiding a steep descent, then following up the river with a grade of 40 feet per geographical mile, it would reach the rise of the western ridge, at a height of 5,100 feet above the sea. This would be the culminating point of the line, from which in a distance of 10 geographical miles it has to fall 1,900 feet to the North and South Bluff, and after that, by a slope of 54 feet per geographical mile for five miles, to reach the Tobacco Plains, crossing the Kootanie Fork by a bridge. This I propose to accomplish in the following manner:—From the culminating point, to pierce the ridge by a tunnel of three geographical miles, and continue the line along the side of the hills to the north of the track until reaching the North Bluff, the whole with a grade of 190 feet per geographical mile. This portion of the line of ten geographical miles would have to be worked by a wire rope and one or more stationary engines. Regarding the remaining five miles to the west of the North and South Bluffs, a careful survey is required to determine whether a grade not too steep for locomotives can be made. My measurements, taken with so uncertain an instrument as an aneroid barometer, must not be depended on to a few feet; they give a fall of 54 feet per geographical mile, or 1 in 112.

As regards the country to the west of the Kootanie Fork I can say nothing, but that no mountains were visible to the distance I could see, neither have I any personal knowledge of the Saskatchewan Plains to the eastward of the forks of Belly River; but it is probable that these great prairies stretch without break from this point to the Red River Settlement, and that in the construction of a railroad little more labour would be required than that of laying down the rails. The following statement of distances to be traversed by a railroad to the Pacific within the British territories may be of interest:—

	Geog. Miles.
Lake Superior to Red River Settlement	320
Red River Settlement, <i>via</i> Elbow of South Branch of Saskatchewan, to	
Rocky Mountains	700
Kootanie Pass	40
West End of Kootanie Pass to Mouth of Fraser's River, Gulf of Georgia	300
Total, Lake Superior to Pacific	1,360

Probable length of railroad, 2,300 miles English.

Thus it will be seen that out of the whole distance one-half is over level prairies, and but 40 miles through mountains.

To resume the narrative of my journey:—On the morning of the 25th of August at starting we were obliged to climb the face of a steep hillside for the purpose of keeping on the left bank of the Kootanie Fork or Elk River, which here sweeps in close under an outer range of the mountains, having a north and south direction, and which I have called "Galton's Range." We gained a considerable altitude above the river which ran at our feet, and of whose course I had a view for some distance. The banks were vertical and rocky, and the stream appeared to continue swift. Both horses and men had enough to do in climbing up, and then coming down again from the heights. I was well repaid for my climb by the remainder of the day's travel, which was through magnificent open forests with patches of prairie sometimes of considerable extent. These forests were the finest it had been my good fortune to see. A splendid species of pine and the larch previously spoken of, with their bright red barks, rose from the ground at ample distances; no brushwood encumbered their feet or offered impediment to the progress of waggons, which might move in every direction.

As we advanced along the prairie the trail forked, and our Indian took the branch which led nearest the river, as from information he had received he believed it to be that which led to the trading post. Towards evening, according to my reckoning, we crossed the boundary line, and camped about two miles within the American territory, and not more than a mile from the river. In a few minutes a Kootanie Indian came to us on horseback. My Indian guide "James," knowing but a few words of his language and a little Blackfoot, and he not knowing one word of Cree, we had some difficulty in comprehending that he wished to inform us that there were no people at the trading post, which he described as being quite close. A small present of tobacco and something to eat were thankfully received by him, and he took his leave. Shortly after there came several more from the same camp, having a chief among them. They were mounted on good looking horses, and raced up to our camp as hard as they could gallop, no doubt with the idea of creating an impression. The evening was spent in a talk with them, one of them understanding Blackfoot. It was dark before they took their departure, having promised that they would meet us in the morning at the trading post, to guide us to their camp, where they wished us much to come, saying they had some provisions.

Following the track still S.S.W. the following morning in a thick fog, we came on the river, and within a few hundred yards found three diminutive log houses. Two of them, not over ten feet square, and to enter which it was necessary to crawl through a hole as an apology for a door, had evidently been used for dwellings; the other, somewhat larger, without a chimney, we were informed was the Kootanie chapel which had been erected the previous spring when a priest was there.

The Kootanies afterwards informed me that white people always come in the fall, remaining the winter trading with them, and returning to Colville, eight or ten days' journey, in the spring. These are the Hudson's Bay Company's people, and this post is what figures on maps in large letters as "Fort Kootanie." I remained here till noon, and obtained observations, which placed the post in latitude $48^{\circ} 55' 5''$ N., and longitude $115^{\circ} 31' W.$, thus a little over five English miles south of the boundary.

In the afternoon I rode four miles across prairie in an easterly direction with a chief, the pack animals following, and arrived at the Kootanie camp, where I was under the necessity of shaking hands with every man, woman, and child. The people had a rather dirty and wretched appearance, but their herds of horses and some few horned cattle, showed that they were not poor.

Having pitched my tent at a short distance from the lodges of the Indians, which were in a pleasant situation near a small stream with some woods along it at the base of Galton's Range, I was soon inundated with presents of berries, dried and fresh, dried and pounded meat, and cow's milk. Of course, although no payment was asked, I paid these people for their food in tobacco, ammunition, &c.

Seeing that there was no chance of starving, I determined on remaining here some days for the sake of the horses; the next five days were therefore spent in trading, and exchanging horses, buying provisions, &c., and obtaining by actual observation and Indian report such knowledge of the country as I was enabled to do.

The weather was fine and generally calm, but rather warm, the thermometer ranging from 47° to 82° in the shade. I should have said, that in my passage over the mountains I had experienced no cold nights, the temperature at sunrise being usually about 50° , once only so low as 37° .

I made an excursion to the north of the boundary with my sextant, to obtain as near as possible the precise position of the line; I found no remarkable feature to mark it, but noted the place where it crossed the hills. I also obtained a sketch of the mountains to the northward, Mount Deception, or, as I had myself named it from its peculiar form, "The Steeples," standing out quite distinct from the rest. I may here say, that it was in the neighbourhood of this mountain that Mr. Palliser, following the old emigrant pass which he had entered at Bow River, emerged from the mountains after a six or eight days' journey; he then recrossed by the Kootanie Pass, which I had previously explored.

I found the Kootanies communicative, and from them gathered the following information:—

That Colville, an American settlement on the Columbia, was about eight or ten days' journey with pack horses, and that they could descend to it by the river in canoes, but there were too many falls and rapids to admit of its being ascended; that the Flathead River, which I followed up in the mountains, runs to the south and joins Clark's Fork of the Columbia, on which is the Flathead Mission, which they described as three days' riding south of this; that there are large lakes to the N.W. of the Kootanie Post, from one of which a small river flows and joins the Kootanie Fork before it falls into Clark's Fork.

They also told me that there was a pass entering the mountains a little to the southward of their camp, and which came out on the east side near the Chief's Mountain; that there were long hills, but

not so steep as to the Kootanie Pass, and that they used it sometimes when the horses were heavily loaded. This information of another pass in a portion of the mountains that I knew should be explored caused me at once to decide on recrossing the mountains by this pass, although I knew that it must be wholly or partially on American ground. I, therefore, prevailed upon a Kootanie to accompany the party across as guide.

There are some considerable tracts of the Tobacco Plains which are prairie. The grass, however, does not grow close and thick, but in small bunches with bare ground between, and the pasture is nothing to be compared in appearance to that at the base of the mountains on the east side. This is perhaps chiefly owing to the nature of the soil, which in the latter case is a black mould, while on the Tobacco Plains it is sandy, and in most parts stony. At this season the grass was quite dried up and yellow.

As to the Kootanie Indians, their language at once strikes one as being most guttural and unpronounceable by a European, every word appearing to be brought up from their lowest extremities with difficulty.

They are nearly all baptized Roman Catholics, and are most particular in their attendance at morning and evening prayers, to which they are summoned by a small hand-bell. They always pray before eating. On the Sunday that I spent with them their service, in which is a good deal of singing, lasted a considerable time. One of their number preached, and seemed to be well attended to.

Their food at this season appears to be almost entirely berries; namely, the "Sasketoom" of the Crees, a delicious fruit, and a small species of cherry, also a sweet root, which they obtain to the southward.

They grow some little wheat and a few peas; a patch of the former, about forty yards square, which I saw near their camp, although rather small-headed, looked well, a proof that this grain thrives in latitude 49° at an altitude of 2,500 feet above the sea.

They possess more horses than any Indians I have seen or heard of on the east side, a camp of only six tents having about 150 old and young. They also, in their treatment, are kind to and show some knowledge of the animal. They are adepts at throwing the lasso, being brought up from their youth to its use. They possess a certain amount of domestic cattle, six tents having twelve or sixteen head; and I heard of some individuals at a distant camp who owned as many as twenty or thirty each.

They are perfectly honest and do not beg, qualities which I have never yet met with in any Indians. I extract the following from my journal, written on the spot:—"On now taking leave of the Kootanies, with whom I have been camped for nearly a week, it is but justice to say, that they have behaved in a very civil and hospitable manner; and although our clothes and other articles have been lying about in all directions, we have (with the exception of some hide-lines, moccassins, and other articles of leather, which the half-starved dogs have eaten) not lost a single article." Whether this honesty is to be attributed to the knowledge of Christianity spread among them by the ministers of the Roman Catholic church, or whether it is innate in them, I can only say that it is a great contrast to the effect produced by the missions in the Indian territory on the east side.

The Tobacco Plains form the country of the Kootanies, but every spring ~~and~~ fall they cross the mountains to the Saskatchewan Plains for the purpose of killing buffalo; they return with supplies of dried meat, &c., with which they trade for blankets, knives, tobacco, &c. with the Hudson's Bay Company's traders at the Kootanie Post. They also sometimes cross during the latter part of winter, when there is sufficient crust on the deep snow of the mountains, on snow shoes, also for the purpose of obtaining provisions, for there is little or no large game on the west side.

On the 2d of September I set out on my return journey across the mountains. The morning was clear and sharp, the thermometer being two degrees below freezing. After I had lost sight of the Kootanie camp, and was riding ahead of my party on a S.S.E. course over undulating prairie, I felt satisfied that I had done all that came under the spirit of my instructions, and was happy to be able to recross the mountains by another unexplored route; my only regret was, that this time it was not my fate to see the Pacific.

Leaving the Tobacco Plains at a point where they were pretty thickly wooded, we followed a narrow trail which, turning the south end of Galton's Range, followed up a small creek towards the north-east. We crossed a considerable mountain stream coming down a valley from the north, which, as it may be of use to the Boundary Commission, I have taken care to mark, and camped at an altitude of 4,070 feet. The following day we crossed soon after starting some high land, and then descended for the remainder of the day through thick woods till we arrived in the valley of Flathead River. The day after we descended by successive steps to the Flathead River, where it is joined by a creek from the N.W. Here I remained till noon for the purpose of fixing the position of this part of the river, which was just twenty-five miles south of where I had fallen upon it in my progress westward. Several peaks of the mountains showed well from this valley, and I did not lose the opportunity of sketching. A storm coming on drove me to camp earlier than I had intended. We halted on the creek spoken of, and only about half a mile south of where I had fallen upon it in the according to careful bearings, crosses just over a mountain, which itself has its length nearly in the exact direction of the line. Much rain fell in the afternoon, and by the next morning, Sunday, had changed for snow, which continued nearly all that day, giving the mountains a good white coat. On Monday the 6th of September we regained British ground immediately on starting at 6 A.M.; we travelled up the creek till 10, when we halted for breakfast. It was cold, raw, and clouded. Here we found that the Kootanies, four men and two women, with whom we were travelling, and who had camped here on Saturday, had started this morning for the traverse of the mountains. Suspecting that we had a good day's work before us, I delayed as little as possible at breakfast, and

in less than an hour and a half we were again under weigh, travelling up the course of the creek, which has some picturesque falls and cascades, caused by the inclined strata of red shale and sand-stone. After two or three miles we began a steep ascent, and were soon on ground entirely covered with snow, in which the tracks of the Kootanies who had gone before us were visible. We passed along the edge of a very steep hill, and it was as much as the horses or ourselves could do in some places to keep footing. We now descended, crossed a thickly wooded gully, and then commenced the ascent to the water-shed through thick wood. The snow increased in depth as we ascended until, on arriving at the crest, it was two feet on the level, and in places heaped up to double that depth. It was cold work trudging through the snow in thin leather mocassins without socks; and, to make matters worse, it was blowing and snowing all the time. I, however, on arriving at the watershed, with the assistance of the Indian "James," whom I always found most willing, unpacked the horse with the instrument boxes, and obtained a reading of the barometer, which gave an altitude of 6,030 feet. We ascended along the ridge about 100 feet more, and then by a zig-zag track commenced a steep descent. It was not, however, very bad, and we soon arrived at a small mountain torrent flowing eastward, thus regaining the waters of the Atlantic after an absence of sixteen days. The trail continued mostly through woods down the valley due east. The rocks on the tops of the mountains on either side were often of very curious shapes, and the strata in places much contorted; there were also some magnificent cliffs, and the cascades of snow water falling down the narrow gullies added motion to the grandeur of the scene. The snow gradually decreased as we descended. On arriving at the spot where the valley joined another I found the Indians camped on a patch of prairie, where I was glad enough to let my horse free, as we had travelled this day from six to six, with a halt of only 1½ hours.

The horses had the first half of the following day to rest, and I took the opportunity of testing my aneroid barometer by the boiling water apparatus, making the ordinary observations, and taking a sketch of a very peculiar peak just above our camp. After two hours' travelling on level ground along Red-stone Creek we emerged on the Saskatchewan Plains, just six geographical miles north of the 49° parallel, and camped at Waterton Lakes, two miles east of the mouth of the pass.

The position of the Waterton Lakes, as will be seen on the plan, is just where the offset range before spoken of strikes out to the eastward from the main chain, having the Chief's Mountain at its extremity. The uppermost and largest of these lakes lies in a gorge in the mountains, and is crossed by the boundary line. The scenery here is grand and picturesque, and I took care to make a sketch from the narrows between the upper or southernmost and second lake.

I was here fortunate enough to discover a stunted species of pine which M. Bourgeau, the botanist of the expedition, had not obtained. I gave him the specimen of this, as well as of some ferns and other plants which I had collected.

I was much struck by the comparative greenness of the prairies on this side, after the burned-up appearance of the Tobacco Plains, which we had left but a few days.

I remained camped at this pleasant spot two whole days for the sake of the horses, and in order to examine more carefully the nature of the country. Game was abundant, including grizzly bears, and we obtained both fresh meat and fish. The trout and pike in the lakes were of large size.

The Chief's Mountain was not visible from the camp, but I obtained a good view of it from a knoll on the prairie about four miles distant, which with my previous bearings enabled me to lay it down, and curious enough, the boundary line passes just over this peculiar shaped mountain, which stands out in the plain like a landmark. I also made a sketch of it.

It will be seen that some of the waters of the Saskatchewan take their rise from the offset range at the boundary line, and from information gained from the Indians, I believe there is a tributary of the south branch, which rises to the southward of the Chief's Mountain, this may be the Bull-pound River of Arrowsmith; if so, this offset range has nothing to do with dividing the waters of the Missouri and Saskatchewan, and some of the waters of the latter must come from American ground.

We experienced a gale of wind from the south-west on the night of the 7th, which on the following morning ceased very suddenly, and an opposing wind from the north brought rain and snow, which gave another coating of white to the mountains. This corner of the mountains appeared to be a very windy spot, and when it was not blowing much on the plain, a strong breeze came from the south down the gorge in which is the Upper Waterton Lake.

On the 10th of September I turned my face towards Fort Edmonton, the previously appointed winter quarters of the expedition, which lay more than three hundred miles to the north, and as will be seen on the plan, passed several creeks, and over a country mostly prairie. I remained at the Forks of Belly River on Sunday the 12th. From this place I visited a camp of forty-five tents of Blackfoot Indians, accompanied by one of my men and "James," the Cree Indian. I was received with the usual hospitality, and having expressed a desire to change a horse or two, I had no trouble the following morning in exchanging one and buying another for ammunition, tobacco, blankets, old coat, &c. This tribe has the credit of being dangerous, but from what I have seen of them, I consider them far better behaved than their more civilized neighbours, the Crees. I made it a rule never to hide from Indians, and although I had but a small party, to go to them as soon as I knew of their proximity. I also always told them for what reason the British Government had sent the expedition to the country; and I never failed to receive manifestations of goodwill, neither was there one attempt made to steal my horses, a practice only too prevalent among the Indians of these plains.

I need not describe my northward journey; suffice it to say that I kept to the east of my former track, along the base of the mountains, except when I turned in for the purpose of raising the cache. I rested at Bow River on Sunday the 19th, travelled over prairie till crossing Red Deer River, the

other fork of the south branch of the Saskatchewan, on the 23rd; then passing through a partially wooded country, which I had surveyed in the summer, arrived at Fort Edmonton on the north branch on the 29th September.

In this account of the return passage of the Rocky Mountains, by what I have called the Boundary Pass, I have not entered into such details as in the case of the Kootanie Pass, because, as will be seen by the accompanying plan and sections, more than one half of it lies in American ground; but I have given the same amount of attention to the mapping of it, as I considered a knowledge of that portion of the mountains would be of service to the International Boundary Commissioners at present engaged on the west side. Moreover, I do not consider the Boundary Pass so well suited for the passage of a railroad as the Kootanie Pass.

It will be perhaps noticed that I have said nothing concerning the fitness of the Kootanie Pass for a waggon road. My reason is simply that where a railroad can be constructed, a waggon road can also be made; without considerable expense a road could not be made to pass *over* the two high points (through which a railroad would tunnel) in the line of the pack-horse track followed by me; but I have no doubt by taking more circuitous routes, both of these heights might be passed by slopes adapted for wheel carriages. In other parts the road would follow the line proposed for the railroad.

I have not mentioned the existence of two other passes across this portion of the mountains, called the Crow-nest and Flathead Passes, the former in the British and the latter in American territory.

The Crow-nest Pass, of which I have marked the general direction on the plan, follows up Crow-nest River, a tributary of Belly River, into the mountains, and gains the west side near "The Steeples." By report of the natives it is a very bad road, and seldom used. I observed the old trail coming in from the plains on the left bank of Crow-nest River.

The Flathead Pass enters the mountains at the 49th parallel of latitude, follows the west shore of Lake Waterton, and gains Flathead River, which it follows to the Flathead Mission on Clark's Fork of the Columbia, about 80 miles south by east of the Kootanie Trading Post. It is used by the Flathead Indians when crossing to the Saskatchewan Plains for the purpose of obtaining buffalo meat.

Fort Carlton, Saskatchewan River,
December 15, 1858.